VALIDATION REPORT

Sterling Agro Industries Ltd.

Biomass based steam generation project by Sterling Agro Industries Ltd

SGS Climate Change Programme
SGS United Kingdom Ltd
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Date of Issue:	**Project Number:**
12/12/2009	CDM.VAL2221
Project Title:	
Biomass based steam generation project by Sterling Agro Industries Ltd.	
Organisation:	**Client:**
SGS United Kingdom Limited	Sterling Agro Industries Ltd.
Publication of PDD for Stakeholders Consultation	
Commenting Period:	23/10/2008 - 21/11/2008
First PDD Version and Date:	Version 1, dated – 20/10/2008
Final PDD Version and Date:	Version 1.3, dated -31/08/2009

Summary:

Sterling Agro Industries Ltd. has commissioned SGS to perform the validation of the project: Biomass based steam generation project by Sterling Agro Industries Ltd.

Methodology Used: AMS I C

Version and Date: 13, dated – 28th March 2008

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and applicable CDM requirements.

The report is based on the assessment of the project design document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to document reviews, follow up actions (e.g. site visit, telephone or e-mail interviews) and also the review of the applicable simplified methodology and underlying formulae and calculations.

The report and the annexed validation describes a total of 09 findings which include:

- (05) Corrective Action Requests (CARs);
- (04) Clarification Requests (CLs);
- (00) Forward Action Requests (FARs); and

All findings have been closed satisfactorily and the project:

– ☒Will be recommended to the CDM Executive Board with a request for registration

Subject:			**Document Distribution**
CDM Validation			
Validation Team:			
Sanjeev Kumar – Lead Assessor Pankaj Mohan – Lead Assessor (till 1st May 2009) Nikunj Agarwal – Expert (Till 1st October 2009) Nayan Jyoti Deka – Local Assessor & sectoral expert Abhishek Mahawar – Financial Expert			☒ No Distribution (without permission from the Client or responsible organisational unit)
Technical Review:	**Trainee Technical Reviewer:**		
Date: 02/09/2009 & 23/12/2009 Name: Kaviraj Singh	Name: NA		☐ Limited Distribution
Authorised Signatory:			
Name: Siddharth Yadav Date:4th January 2010			☐ Unrestricted Distribution
Revision Number:	**Date:**	**Number of Pages:**	
0	29/07/2009	76	
1	02/09/2009	72	
2	12/12/2009	75	

Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM	EB CDM Executive Board
CER	Certified Emission Reduction
CL	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
DPR	Detail Project Report
FAR	Forward action request
GHG	Greenhouse Gas(es)
HCA	Host Country Approval
IPCC	Intergovernmental Panel on Climate Change
MNES	Ministry of Non Conventional Energy Sources
MOC	Modalities Of Communication
MoEF	Ministry of Environment and Forest
MOM	Minutes of Meeting
MP	Monitoring Plan
MT	Metric Tonnes
ODA	Official Development Assistance
PDD	Project Design Document
PO	Purchase Order
TPH	Ton Per Hour
UNFCCC	United Nations Framework Convention on Climate Change

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Annexes:

1. Validation Opinion

SGS United Kingdom Ltd has been contracted by Sterling Agro Industries Ltd. to perform a validation of the project: Biomass based steam generation project by Sterling Agro Industries Ltd. in India

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism (CDM), Validation and Verification Manual version 1 and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

By installing a biomass based boiler to meet in house requirement of thermal energy the project activity will result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

In our opinion, the project meets all relevant UNFCCC, CDM criteria and all relevant host country criteria. The project correctly applies methodology AMS I C, version 13, dated – 28th March 2008. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 182,890 t of CO2e over a 10 year crediting period, averaging 18,289 t of CO2e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

The project will hence be recommended by SGS for registration with the UNFCCC.

Signed on Behalf of the Validation Body by Authorized Signatory

Signature: 

Name: Siddharth Yadav

Date: 4th January 2010

2. Introduction

2.1 Objective

Sterling Agro Industries Ltd. has commissioned SGS to perform the validation of the project: Biomass based steam generation project by Sterling Agro Industries Ltd. with regard to the relevant requirements for Clean Development Mechanism (CDM) project activities. The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP) and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

2.2 Scope

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

2.3 GHG Project Description

The purpose of the project activity is to install biomass based boiler to meet in house requirement of thermal energy utilizing surplus available agro waste(rice husk) and thus, reducing the GHG emission.

2.4 The Names and Roles of the Validation Team Members

Name	Role	Affiliate
Sanjeev Kumar	Lead Assessor	SGS India
Pankaj Mohan	Lead Assessor(Till 1st May 2009)	SGS India
Nikunj Agarwal (Till 1st October 2009)	Sectoral Expert	SGS India
Nayan Jyoti Deka	Local Assessor & Sectoral expert	SGS India
Abhishek Mahawar	Financial Expert	SGS India

3. Methodology

3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available project document version 01 dated 20/10/2008 and the subsequent versions 1.1 dated – 04/02/2009, version 1.2 dated – 06/042009 (final version). The assessment is performed by trained assessors using a validation protocol attached as Annex 2 Table 2.

The site visit was performed on 19/03/2009 by lead assessor Mr. Pankaj Mohan and local assessor Mr. Nayan Jyoti Deka. The results are summarised as annex 1in the validation report. The validation team has checked the statements mentioned in the PDD through review of documents and contacts with stakeholders.

3.2 Use of the Validation Protocol

The validation protocol used for the assessment is designed in accordance with the Validation and Verification Manual, Version 1 dated 28 November 2008. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation (reporting).

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	Ref ID	Means of Verification (MoV)	Comment	Conclusion/ CARs/CLs
The various requirements are linked to checklist questions the project should meet.	Lists any references and sources used in the validation process. Full details are provided in the table at the bottom of the checklist.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (Y), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification Request (CL) is used when the validation team has identified a need for further clarification.

The completed validation protocol for this project is attached as Annex 2 to this report

3.3 Findings

As an outcome of the validation process, the team can raise different types of findings

A Clarification Request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR).** A CAR

is issued, where:

I. The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
II. The CDM requirements have not been met;
III. There is a risk that emission reductions cannot be monitored or calculated.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of an CL may also lead to a CAR.

A Forward Action Request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

Corrective Action Requests and Clarification Requests are raised in the draft validation protocol and detailed in a separate form (Annex A.3). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to CLs and FARs.

3.4 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team. Findings can be raised at this stage and client must address them within agreed timeline.

4. Validation Findings

4.1 Approval

The section A.3 of PDD version 1 stated that project activity involves India as party. The host country approval letter from India DNA was not available during site visit; therefore CAR# 01 was raised to provide HCA from Indian DNA. In response, the HCA from Indian DNA was provided by the PP, which clearly established that India is a party to the Kyoto Protocol and participation is voluntary. The project title "Biomass based steam generation project by Sterling Agro Industries Ltd." was found consistent with the title of PDD version 1.3/4/ submitted for registration. It is confirmed that HCA/5/ complies with the requirement stipulated in the paragraph 44-50 VVM version 1, EB 44, Annex 3. The provided HCA letter meets requirements therefore CAR#01 was closed out.

4.2 Participation Requirements

The host party for this project is India and has ratified the Kyoto protocol on 26th Aug 2002. This was checked from the UNFCCC website http://maindb.unfccc.int/public/country.pl?country=IN. The project participant listed in section A.3 of PDD version 1.3/4/ is Sterling Agro Industries Ltd. The HCA /5/ letter from India DNA approves the participation of Sterling Agro Industries Ltd. therefore the project participant is approved by the Party to Kyoto Protocol.

No Annex I Party has been identified in the PDD version 1/1/ and therefore no further Letter of Approval was available. It is observed that the CDM EB has agreed that the registration of a CDM project activity can take place without an Annex I Party being involved at the stage of registration although it should be noted that before CER can be transferred to an Annex 1 Party, a Letter of Approval from Annex 1 Party will need to be submitted.

The PP has provided the MOC letter dated 07/04/2009/6/, which was duly verified against the project title and information mentioned in Annex 1 and found to be consistent.

The proposed CDM project has been web hosted in the UNFCCC website http://cdm.unfccc.int/Projects/Validation/DB/7JTCA65XUT78PM5NMNDU83PV0QS0LI/view.html for global stakeholders process to invite comment as per the CDM requirements. As per the CDM EB guidelines the proposed CDM project has been web hosted from 23/10/2008 to 21/11/2008.

4.3 Project Design Document including Project Description

It is confirmed that the PDD/1/ was prepared in accordance with the 'Guidelines for completing the simplified project design document (CDM-SSC-PDD)' version 5 (as per EB34 Annex 09) and CDM –SSC-PDD template version 3 as available on website http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html . The project activity entitled "Biomass based steam generation project by Sterling Agro Industries Ltd." is a unique title of the project activity. The latitude and longitude mentioned in the PDD are unable to be traced and are found to be inappropriate, thus, **CAR #2 was raised**. In response to this, the PP has revised the PDD/2/ and corrected the coordinates which has been checked from the website http://www.gorissen.info/Pierre/maps/googleMapLocation.php?lat=27.08&lon=78.07&setLatLon=Set and found to be correct. The project activity is located at Longitude 78^{0}42'00'' East and Latitude 27^{0}48'00'' North. Thus, **CAR #2 was closed out.**

The ownership of the project activity lies with Sterling Agro Industries Ltd. which has been verified from the factory license/18/ which reflects the ownership of the project activity.

The proposed project activity involves the installation of a 15 TPH biomass based boiler for thermal energy generation by using renewable biomass in the boiler for steam generation. In the absence of the proposed project activity equivalent amount of thermal energy would have been generated from coal based boiler. The technical specification of the project activity has been verified from the supplier quotation/10/& /11/ for coal and biomass boilers.

The PDD version 1/1/ mentions that the project proponent dose not have any other registered or applied for registration CDM project activity within 1 Km area from the present project activity by the same project participant within 2 years in the same project category and technology. This was checked from UNFCCC website and also during the site visit by interviewing the management personal.

There was no public funding involved in the project activity, it was checked from the financial records available at site and the matter was also discussed with project developer. PP has also provided an undertaking letter/19/ for no involvement of ODA in the project activity.

An undertaking letter/20/ was provided by PP for no change in the technology of the proposed project activity during the crediting period which has been found satisfactory.

Hence, the above discussion gives a clear understanding of the precise nature of the project activity and its technical aspects which has been clearly validated by the validator.

4.4 Eligibility as a Small Scale Project

The project activity correctly fits into the small scale project categories. The project activity involves the installation of biomass based boiler for thermal energy generation to meet in house requirement and is following AMS I C, version 13. The thermal generation capacity of the project is 9.83 $MW_{thermal}$ (15TPH) which is lesser than the 45$MW_{thermal}$ limit for small scale project activity and same has been verified during the site visit by validation team by checking the specification of the boiler. This is inline with EB 28 report, paragraph 56 & 57 and the threshold limits is not exceeded.

The project activity was not found to be a debundled component of a large scale project activity. It was confirmed conducting interviews on-site. There is no other CDM project activity (neither large scale nor small scale), other than project activity by the project proponent, registered within 1 Km of the project boundary in the last 2 years.

4.5 Applicability of selected methodology to the project activity

Applicability of AMS IC Version 13 is illustrated as below:

As per the technology/measure defined in AMS I C, version 13, the project activity involves the installation of renewable biomass based boiler that produces steam for in spray dryer and milk processing. This was checked during the site visit and also from the DPR, which implied that the selected methodology is appropriate.

The thermal generation capacity of the project activity is only 9.83 $MW_{thermal}$ which is less than the 45 $MW_{thermal}$. This has been verified from the boiler specification/11/ and physically verified during the site visit.

Paragraph 3 of AMS I C, version 13 indicates “For co-fired systems the aggregate installed capacity (specified for fossil fuel use) of all systems affected by the project activity shall not exceed 45 MW_{th}.” Which is applicable to the project activity as the thermal generation capacity of the co-fire system (project activity) is only 9.83 $MW_{thermal}$ which is less than 45 $MW_{thermal}$ limit. This has been verified from the boiler specification and physically verified from the name plate details of the boiler during the site visit.

The project is not a cogeneration project which has been verified during the site visit and hence, the second part of the paragraph 3 of AMS I C, version 13 is not applicable for the project activity.

The proposed project activity is not the extension of an existing renewable energy facility, which has been verified during the site visit and thus the paragraph 4 of AMS IC, version 13 “In the case of project activities that involve the addition of renewable energy units at an existing renewable energy facility, the total capacity of the units added by the project should be lower than 45MW_{th} and should be physically distinct from the existing units.” is not applicable.

Therefore, the fact is clearly established that applicability of AMS I C, version 13 is complied by the project activity. As an outcome the project activity falls into the project category of scope 1” renewable energy project” and correctly applies the methodology AMS IC, version 13” Thermal energy for the user with or without electricity”.

4.6 Project Boundary

As per the guidelines mentioned in AMS IC, version 13” The physical, geographical site of renewable energy generation delineate the project boundary.” The PP has clearly defined the project boundary for the project activity which includes the steam generation boiler and fuel storage area. This has been physically verified by the validator during the site visit and found to be satisfactory. Hence, from the above discussion it has been concluded that the project boundary of the proposed CDM project activity is inline with applied methodology AMS IC version 13 and as per paragraph 77-79 of VVM version 1, EB 44, Annex 3.

4.7 Baseline Selection and Additionality

The project has applied baseline inline to small scale methodology AMS IC, version 13 for “thermal energy for the user with or without electricity”: as per Appendix B of the simplified modalities and procedures for small-scale CDM project activities. The baseline scenario ,paragraph 6 of the applied methodology AMS IC, version 13 i.e.” For renewable energy technologies that displace technologies using fossil fuels, the simplified baseline is the fuel consumption of the technologies that would have been used in the absence of the project activity times an emission coefficient for the fossil fuel displaced. IPCC default values for emission coefficients may be used.” has been chosen appropriately for the project activity.

The following alternatives are available with the PP in order to generate steam:

1. Use of fossil fuels like coal, furnace oil and diesel as fuel source

2. Use of biomass (rice husk and agro waste) as fuel source

The project proponent has done analysis of unit cost of various fossil fuels like FO, Diesel and Coal per unit of energy generation which has been verified from the CER spreadsheet along with sources of assumption and it has been concluded that coal has the lowest unit cost of energy generation, amongst all the other fossil fuel options available. The detail analysis is mentioned in Additionality section. Therefore, coal has been chosen as the possible fuel alternatives for the project activity. Hence, the project proponent has two alternatives in order to generate steams which are: Alternative-1: Steam generation using coal and Alternative-2: Steam generation using Biomass without CDM benefit. PP has done levelized cost analysis of unit energy generation for the two alternatives and it has been arrived that unit cost of steam generation for Alternative-2 is more than that Alternative -1 and hence it can be concluded that Alternative-1 would be the choice for steam generation for the project proponent in the absence of the project activity. So in the baseline scenario coal would have been used in the boiler to generate steam.

Thus the above discussion concluded that coal is the most plausible baseline scenario for the proposed project activity to generate steam which can be proved from the levelized cost analysis[/6/] and is in accordance to paragraphs 80, 81,86a-e and 93-95 of the VVM version 1, EB 44, Annex 3

4.7.1 Additionality

UNFCCC simplified modalities seek to establish additionality of the project activity as per Attachment A to Appendix B, which listed various barriers, out of which, at least one barrier shall be identified due to which the project would not have occurred any way. Project proponent identified following barriers for the proposed CDM activity; Investment barrier, technological barrier and other barriers.

Investment barrier: The Simple cost comparison analysis/7/ carried by the PP reveals that use of coal is the most cost effective option as the unit cost of energy generation by biomass as a fuel is costlier as compared to the unit cost of energy generation by coal. The PP has done fuel cost analysis based on unit cost of energy generation, for biomass and the baseline scenario (i.e. coal) to analyse the project financial viability in terms of fuel cost analysis. The total investment in the project is Rs. 183.45 Lacs/8/ which includes the cost of boiler and its accessories, civil works etc. The efficiency of the boilers for both the cases (project activity and baseline) has been considered as per the purchase order of the boiler. Other factors e.g. required rate of return on equity, insurance and depreciation rate have been considered to be the same for both the cases for comparison and are taken from the DPR/8/ which is acceptable. The landed cost of fuel used in the project activity and the baseline scenario for the year 2007-08 has been considered obtained from quotations from suppliers/13/ & /14/. The cost of transportation for coal has been verified from the transporters invoices/42/.The calorific values used for the unit cost analysis have been obtained from the plant laboratory/22/ & /23/. The cost comparison analysis shows that the unit cost of generation per ton (steam) for coal based boiler is Rs. 669 and for biomass based boiler is Rs. 773. The PP has carried out sensitivity analysis (+/-10%) for unit cost of steam generation with cost of fuel and efficiency of boilers which reveals that the unit cost of steam generation by biomass based boiler is above the coal based boiler in all cases. The sensitivity analysis has been shown below.

Changes in unit cost of steam production with cost of fuel:

Scenario	Unit cost of steam production On coal	Unit cost of steam production On Biomass
Biomass price + 10% and coal price remains constant	Rs. 669	Rs. 845
Coal price + 10% and biomass price remains constant	Rs. 730	Rs. 773
Biomass price - 10% and coal price remains constant	Rs. 669	Rs. 701
Coal price - 10% and biomass price remains constant	Rs. 607	Rs. 771

Changes in unit cost of steam production with efficiency of boiler:

Scenario	Unit cost of steam production on Coal	Unit cost of steam production on Biomass
Biomass boiler eff. + 10% and coal boiler eff. remains constant	Rs. 669	Rs. 707
Coal boiler eff. + 10% and biomass boiler eff. remains constant	Rs. 612	Rs. 773
Biomass boiler eff. - 10% and coal boiler eff. remains constant	Rs. 669	Rs. 853
Coal boiler eff. - 10% and biomass boiler eff. remains constant	Rs. 737	Rs. 773

The above sensitivity analysis concluded that unit cost of steam production in the project activity is well above the unit cost of steam production in baseline scenario and therefore, the proposed project activity is not a business as usual.

For establishing the fact that, proposed CDM project is additional and not a business as usual, the discussed **CAR #4** hereinafter were raised and closed out satisfactorily.

The supportive documents and justification were sought, as CAR #4 was raised about the following values/figures used for investment barrier, technological barrier, common practice analysis and other barrier:-

Investment barrier:

- Documentary evidences in support of all the parameters considered for calculation of investment barrier like financial parameters, Technical parameters and sensitivity analysis.
- Spreadsheets for all the calculation done under investment barriers including the calculation done for sensitivity analysis.
- justification required for not considering +/- 10% for all the parameters under sensitivity analysis..

Technological barrier:

- Documentary evidence in support of technological barrier.

Common Practice Analysis:

- Documentary evidence in support of common practice analysis, e.g. Evidence for First of its kind in the region for the project activity.

Other barriers:

Clarification with evidence how-

1. Biomass availability is highly subjected to seasonal fluctuation due to the vagaries of nature and biomass residues are season dependent.

2. Collection, transportation and price fluctuation of biomass is a big constraint for project's successful operation and it may create availability issue whereas as per methodology AMS I.C., PP needs to demonstrate surplus biomass availability (25% larger then the quantity of biomass utilized), and was also asked to provide the biomass assessment report.

The sufficient information, as discussed below, was provided and was reviewed by the SGS Validation team and found to be correct.

The following documents are provided in support of all technical and financial parameters considered for calculation of investment barrier i.e. Offer for 15 TPH coal fired boiler from Cheema boiler/10/, Offer for 15 TPH biomass fired boiler from Cheema boiler/11/, PO copy of biomass fired boiler/9/, Coal quotation/14/, Husk quotation/13/, PO copy of coal/16/, PO copy of husk/15/, Detailed Project report (DPR)/8/ and spreadsheet/7/ has been assessed and found to be ok.

The PP has revised the PDD, version 1.3/4/ and spreadsheet/7/ which considers the conservative values for efficiency of biomass and coal fire boiler which has been found to be satisfactory. The PP has considered the parameters like cost of equity, O & M, depreciation and PLF from DPR which has been checked and found to be acceptable. The clarification provided by the PP on the differences in CER values in the different section of the DPR is found to be satisfactory. The PP has provided the log book for calorific value of coal/22/ and biomass/23/ along with the calibration certificate/33/ and the copy of the bomb calorimeter instruction manual/32/ which was found to be OK.

The +/- 10% boiler efficiency has been considered in the sensitivity analysis of the revised PDD version 1.3/4/ and the CER spreadsheet/7/ which has been checked and found to be OK.

In case of technological barrier, the web links/38/, /39/ & /40/ provided by the PP in support, of the hurdles mentioned in the PDD/4/ viz. physical processing of the biomass for proper injection or feeding into the boiler, fireside performance of the biomass and its impact on flame stability, boiler heat exchanger surface fouling or slagging, corrosion, ash deposition and boiler tube corrosion because biomass can contain considerable alkali and alkaline-earth elements and chlorine which, when mixed with other gas components promote a different array of vapour and fine particulate deposition in the boiler, the low bulk density and low energy density of biomass lowers the performance of a biomass based system, the presence of moisture more than normal would not only affect the performance of the boiler but also result in increased effective cost of biomass and energy generation, the presence of impurities may cause the plugging and mechanical breakdown of boiler equipments, the presence of glass and metal may cause sintering and fouling of boiler equipments and presence of impurities can also provide incorrect estimates of the biomass requirement for energy generation, were verified and found to be convincing. Moreover, the PP has provided the MOM with the boiler supplier/25/ which has been reviewed and it mentioned the barrier associated with the biomass based boiler as compared to coal based boiler.

In case of common practice analysis, PP has removed it from the PDD due to lack of sufficient evidence in support of it and it is acceptable as per "Non binding examples to demonstrate additionality for SSC project activities" the PP needs to demonstrate only one barrier. .

The justification provide by the PP on the other barrier seems to be reasonable as it is evident from the biomass assessment report/17/ and the web link/41/ provided by the PP which has been checked and found to be acceptable.

PP has provided sufficient information along with documentary evidences which has been reviewed by the validator and found to be satisfactory. Thus, **CAR #4 was closed.**

Biomass Assessment: The biomass assessment has been carriered out by a third party, ENVIROAID, for the year 2008-2009. An exhaustive survey was carried out covering an area of 90 KM radius for determination of availability of biomass The coverage of study area for biomass assessment was selected in parts of Aligarh, Mathura, Agra, Hathras, Firozabad, Mainpuri, Bareilly and Etah districts constituting Agra Mandal and area covered within 90 km radius from Etah district. From the Biomass assessment report/17/, it has been found that the total biomass generation in the region is 6355529 MT/annum, the total consumption of biomass in the region is 1492672 MT/annum. The biomass requirement in the project activity is 23309.00 MT/annum which is evident from the CER & financial calculation spreadsheet/7/. Hence, the total biomass utilized including the project activity is 1515981.00 MT/annum and after the consumption, the surplus availability of biomass is 4839548.00 MT/annum which is more than 25% .of the biomass required for the proposed CDM project activity. Thus, PP has clearly demonstrated the surplus availability of biomass in the region which has been found to be satisfactory.

The discussion above concluded that the project activity is economically unattractive without CDM benefit. Therefore, the project activity is additional due to investment barrier (strongest barrier amongst the three barriers), followed by technological barrier and other barriers.

4.7.2 Prior Consideration of the Clean Development Mechanism

CAR #4 was raised to demonstrate the prior knowledge, CDM consideration for the project activity. In response, it was established that

Sterling Agro Industries Ltd. has considered CDM at planning stage of this project and this is evident from the DPR/8/ and Board resolution/11/ letter which has been verified and found that they are dated prior to the project start date. The PP has provided a copy of the PO of biomass based boiler/9/ in support of proof of start date of the project activity which has been verified and found to inline to EB41 Para 67.Moreover, the PP has indicated by means of evidences/36/, /34/, /31/, /37/ & /30/ that continuing and real action were taken to secure CDM status for the project in parallel with its implementation which has been verified by the validator and found to be satisfactory.

The Chronology of event for the proposed project activity -

S.N.	Events	Date
1	Preparation of Detailed project report/8/	December-2007
2	Offer from Cheema boiler for 15TPH coal fired boiler./10/	05/01/2008
3	Offer from Cheema boiler for 15TPH biomass fired boiler./11/	15/01/2008
4	Board decided to go ahead with CDM/12/	18/01/2008
5	Purchase order placed for biomass fired boiler/9/	22/01/08
7	Offer from CDM advisor/36/	08/04/08
8	Approval from director of boilers, U.P./34/	18/06/08
11	Engagement of CDM advisor/31/	04/07/08
12	Consent to establish from director of boilers/37/	16/07/08
13	News Paper advertisement published/30/	Rajpath in English (dated on 05/07/08). Rajpath in Hindi (dated on 10/07/08) Pravada (dated on 16/07/08)

14	Validation proposal from DOE	23/07/08
15	Engagement of DOE	30/07/08
16	PDD and PCN submitted to MoEF	22/08/08
17	Interviews with DNA[24]	17/10/08
18	PDD webhosting	23/10/08
19	Commissioning trial and Bank tube damage	20/02/09
20	Validation site visit	19/03/09
21	Expected date of commissioning	May-June 2009

It may be noted here that all discussion about CDM consideration is prior to the real execution of this project (project start date: 22/01/08[9]), therefore the prior CDM knowledge and seriousness of CDM consideration are demonstrated and the continuous efforts to seek CDM benefits for the proposed CDM project activity is also clear. This complies with the requirements of EB41. Annexure 46 and EB48 Annex 61, thus, CAR#04 was closed out.

4.7.3 Identification of alternatives (if applicable)

In the project activity Additionality Tool is not used by PP therefore this section is not applicable.

4.7.4 Investment analysis (if applicable)

In the project activity Additionality Tool is not used by PP therefore this section is not applicable.

4.7.5 Barrier analysis (if applicable)

In the project activity Additionality Tool is not used by PP therefore this section is not applicable.

4.7.6 Common practice analysis

In the project activity Additionality Tool is not used by PP therefore this section is not applicable.

4.8 Application of Baseline Methodology and Calculation of Emission Factors

The project has applied baseline methodology as mentioned in the small scale methodology AMS IC version 13 for “Thermal energy for the user with or without electricity”; as per Appendix B of simplified modalities and procedures for small-scale CDM project activities.

For the proposed project activity the baseline is the steam generation using coal, thus, as per the applied methodology AMS IC version 13, para 10 “For steam/heat produced using fossil fuels the baseline emissions are calculated as follows;”

$BE_y = HG_y * EF_{CO2} / \eta_{th}$

Where,

BE_y the baseline emissions from steam displaced by the project activity during the year y in tCO2e.

HG_y the net quantity of steam supplied by the project activity during the year y in TJ.

EF_{CO2} the CO2 emission factor per unit of energy of the coal that would have been used in the baseline plant in (tCO2 / TJ), IPCC default emission factor is used (96.1 tCO2/TJ).

η_{th} the efficiency of the boiler using coal that would have been used in the absence of the project activity.

The above equation has been correctly applied by the PP in accordance with the baseline and monitoring methodology AMS IC, version 13 in the PDD/4/ which has been reviewed and found to be correct.

Project Emission on account of use of fossil fuel for start up of boiler and as co-firing in the project activity would be considered and monitored as per the the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion", version-02, EB41(http://cdm.unfccc.int/methodologies/Tools/meth_tool03_v02.pdf) .
Project Emissions due to Auxiliary Fuel (e.g. Coal) Consumption is estimated as per the following equation:

$$PE_{FC,j,y} = \sum_i FC_{i,j,y} \times COEF_{i,y}$$

Where

$PE_{FC,j,y}$	Are the CO2 emissions from fossil fuel combustion in process j during the year y (tCO2/yr)
$FC_{i,j,y}$	the quantity of fuel type *i* combusted in process *j* during the year *y* (mass or volume unit/yr)
$COEF_{i,y}$	the CO2 emission coefficient of fuel type *i* in year *y* (tCO2/mass or volume unit)
i	the fuel types combusted in process *j* during the year *y*

The CO2 emission coefficient $COEF_{i,y}$ is calculated based on net calorific value and CO_2 emission factor of the fuel type *i*, as follows:

$$COEF_{i,y} = NCV_{i,y} \times EF_{CO2,i,y}$$

Where,

$COEF_{i,y}$	the CO2 emission coefficient of fuel type i in year *y* (tCO2/mass or volume unit)
$NCV_{i,y}$	the weighted average net calorific value of the fuel type *i* in year *y* (GJ/mass or volume unit)
$EF_{CO2,i,y}$	the weighted average CO2 emission factor of fuel type *i* in year *y* (tCO2/GJ)
i	the fuel types combusted in process *j* during the year *y*

The PP has correctly applied the Tool to calculate the project emission which has been checked from the PDD/3/ and found to be satisfactory.
Leakages:- There is enough biomass residue available in the project activity region that goes unutilized and hence leakage emissions on account of competing use of this biomass residue has not been considered and it has been found to be inline to EB 47, annex 28, para 18(http://cdm.unfccc.int/EB/047/eb47_repan28.pdf).

Leakage due to transfer of equipments to/ from the project activity is zero as according to the methodology AMS IC, version 13, if the equipment is transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered. The equipments installed in the project activity are not transferred from any other activity which has been verified from the PO of the biomass based boiler. Besides, no existing equipment has been transferred from the project site which has been physically verified during the site visit. Leakage due to transportation of biomass to the plant site is zero as in the pre-project scenario coal was procured from the mines located at a distance of around 300-350 kms from the project site, where as in the post project scenario the project activity the biomass is procured from in a region of max 100 kms from the project site.This has been verified during the site visit by having interview with the PP and also it has been checked from the website http://www.mapsofindia.com/maps/india/coalreserves.htm .

The emission reduction achieved by the project activity will be the difference between the baseline emission and the sum of the project emission and leakage and is calculated based on equation

$ER_y = BE_y - (PE_y + L_y)$ which is found to be correctly applied in the PDD/4/ and is acceptable.

CAR #5 was raised as the equation used for determining Project Emission is not clear as it has not been mentioned anywhere in the applied methodology AMS I.C. PP is requested to clarify with evidence the leakage as per the applied methodology as given in Table 6.Aproaches to rule out leakages (L1, L2, L3 &L4). As per the methodology AMS 1C, PP need to define clearly the geographical boundary / region to procured

biomass in the PDD and also mention that the region should not be changed during the crediting period. PP responded that project emission is calculated using equation (1) and (4) of "**Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", Version-02, EB 41** and the same equation has been mentioned in the revised PDD. The revised PDD version 1.2 and the tool to calculate the project emission (http://cdm.unfccc.int/methodologies/Tools/meth_tool03_v02.pdf) has been checked and found that the equations used for estimating the project emission are correctly mentioned in the PDD version 1.2 and acceptable. For leakage, the PP responded that as per the Meth AMS I.C, Version 13, determination of leakage shall be done following the General guidance on leakage **OR** following the prescriptions included in the leakage section of AM0042 as in annex 1 of AMS-I.C. In the PDD, the PP has estimated the leakages following the guidance not the Methodology AM0042. In this regards, the PP should not go through the approaches to rule out the leakages L1, L2, L3 and L4. The justification provided by the PP is found to be reasonable and it is accepted. The PP mentioned that the regions to procured biomass have been mentioned clearly in the section B.6.1 under heading "Leakages" of the revised PDD, version 1.2 which has been reviewed and found to be acceptable. Thus, **CAR #5** was satisfactorily resolved and hence, it was closed out.

CL #6 was raised asking the PP to demonstrate the efficiency of baseline boiler with supportive documents as per Para 13 of the applied methodology AMS IC, version 13. In response to this the PP mentioned that Maximum efficiency of 100% of baseline coal based boiler has been considered in the revised PDD version 1.2 which has been verified from the PDD and the spreadsheet and found to be satisfactory. Thus, **CL #6 was closed out.**

In the project activity, the emission factor for coal is consider as 96.1 tCO2/TJ which has been derived from the IPCC 2006 guideline and found to be acceptable. The emission reduction achieved by the project activity will be the difference between the baseline emission and the sum of the project emission and leakage. Thus, it is concluded that all the steps taken and equations applied to calculate project emissions, baseline emissions, and leakage and emission reductions complies with the requirements of the selected baseline and monitoring methodology AMS IC, version 13.

4.9 Application of Monitoring Methodology and Monitoring Plan

The present CDM project activity uses monitoring methodology AMS IC, version 13. The monitoring methodology AMS IC, version 13 applied consistently for the monitoring of project emission and baseline emission. The monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period. The information given for each monitoring variable by the presented table is sufficient to ensure the verification of a proper implementation of the monitoring plan.

CL #3 was raised as the PDD[/1/] does not mention extensive initial training and maintenance efforts in order to work as presumed during the project period and No provisions are mentioned in the PDD for meeting training and maintenance needs. PP has revised the PDD[/2/] and mentioned the training and maintenance efforts in section B.7.2 which is found to be satisfactory. Thus, **CL #3 was closed.**

CAR #7 was raised to substantiate the following –

- The monitoring plan does not mention the amount of each type of biomass fuel used, in the parameters to be monitored as Para section 23, methodology AMS I.C.
- The parameters NCV of biomass and fossil fuel mentioned in monitoring parameters will be done using -Bomb calorimeter, How NCV will be measured using Bomb Calorimeter is not clear. Please clarify the same.
- No QA/QC procedure is mentioned for the parameter $Q_{fossil,I,y}$ (Quantity of fossil fuel of type i combusted in year y).

The sufficient information, as discuss below, was provided about the asked queries which was reviewed by assessor and found to be correct.

- The monitoring plan clearly describes the parameter Qbiomass,I,y that Quantity of biomass of type i combusted in year y. This has been verified from the revised PDD, version 1.1[/2/] and is found that the monitoring plan clearly describes the parameter Qbiomass,I,y that Quantity of biomass of type i combusted in year y and it is acceptable.

- A brief description of the NCV measurement method as per supplier specification has been mentioned in the revised PDD. This has been verified from the revised PDD, version 1.1[/2/] and is found that the procedures for NCV measurement is correct (also the PP has provided the copy of instruction manual of bomb calorimeter for NCV calculation) and it is acceptable
- The QA/QC procedure is mentioned for the parameter Qfossil,I,y (Quantity of fossil fuel of type i combusted in year y) in the revised PDD. This has been verified from the revised PDD[/3/], version 1.2 and is found to be acceptable.

The PP has provided sufficient information in the PDD[/2/] which has been reviewed by the SGS Assessment team and found to be satisfactory. Thus, **CAR #7 was closed out.**

The monitoring plan completely describes all measures to be implemented for monitoring all parameter required which compliance with the requirements of the applied methodology AMS IC, version 13. The monitoring plan described the responsibility of the monitoring persons, data collection and record keeping, frequency of monitoring, maintenance and positioning of the equipments. The meters will be calibrated by calibrated annually has been verified by interviewing the project developer during the site visit by the validator. The project proponent has been interview and it has been observed during the site visit that the monitoring arrangements described in the monitoring plan are feasible within the project design. From the above discussion, it has been concluded that PP got sufficient ability to implement the monitoring plan.

4.10 Environmental Impacts

In the project activity biomass based boiler will be installed to generate steam for in house requirement. Therefore, no environmental impacts are associated with the project activity.

CL#08 was raised asking the PP to provide the evidences if EIA required for this project activity and Consent to establish & Consent to operate from state pollution control board for the project activity. In response to this, PP has provided the evidence for no EIA requirement for this activity which has been mentioned in the revised PDD, version1.1[/2/]. This has been verified from the website http://envfor.nic.in/legis/eia/so1533.pdf and found that the proposed project activity dose not fall under the category of EIA requirement. PP has provided the Consent to established letter[/26/] from the state pollution control board for the project activity which has been reviewed and found to be satisfactory. PP also mentioned that since the project is not yet commission, the consent to operate for the project activity from the state pollution control board will be provided after the commissioning of the project which is acceptable. Thus, CL#08 was closed out.

4.11 Local Stakeholder Comments

The project proponent identified the relevant stakeholder like District magistrate, Local gram panchayat and local community as stakeholders for the project activity. Local newspaper and invitation letter has been used to invite comments by local stakeholders. The stakeholders meeting was conducted on 28/08/08 and PDD[/1/] was web hosted on 23/10/2008. Thus it is confirmed as per the VVM version 1 requirement that the local stakeholders comments are invited for the project activity prior to the publication of PDD.

CL#09 was raised asking the PP to provide evidence in support of media used (local newspaper) and invitation letter and the MOM of local stakeholder's consultation. In response to this, the PP has provided the copies of the local newspaper[/30/], copies of invitation letter sent to district magistrate[/27/] and gram panchayat[/28/] and MOM[/29/] of stakeholders consultation process which has been verified from the documents provided by the PP and found to be satisfactory. The local stakeholder's consultation minutes of meeting were checked for any comments from local stakeholders and it is found that there were no negative comments from the local stakeholders to the project activity. Thus, CAR#09 was closed out. Hence, the above discussion reveals the adequacy of local stakeholders' consultation process

5. Comments by Parties, Stakeholders and NGOs

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

5.1 Description of How and When the PDD was Made Publicly Available

The Project Design Document for this project was made available on the SGS website http://cdm.unfccc.int/Projects/Validation/DB/7JTCA65XUT78PM5NMNDU83PV0QS0LI/view.htmland was open for comments from 23/10/2008 until 21/11/2008. Comments were invited through the UNFCCC CDM homepage

5.2 Compilation of all Comments Received

Comment Number	Date Received	Submitter	Comment
1	Date was not mentioned in the web site.	Ara Cho	It can be considered that using biomass as an energy source can be one of good activities which prevent climate change and drain on fossil fuel. However, generally, a project participant thinks that it will be difficult to promote the project which generates energy by using solid biomass such as rice husk, wood chip, etc. as a CDM project because of additionally. Also, moisture which solid biomass contains can be an obstacle to use it as an energy source. In spite of these difficulties, it is shown that this project overcomes barriers well and it can be such a good try to promote more solid biomass projects.

5.3 Explanation of How Comments Have Been Taken into Account

The responses of the project participants for the above comments are as follow:

We thank the commenter for the encouragement. CDM has played an important role in bringing up this kind of projects. We would like to share our experience on the project activity if sought further.

The DOE has analysed the comment raised by the global stakeholders and the reasoning to close the comments is that it is an appreciating comment regarding the project activity which has been found to be reasonable.

6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
19/03/2009	Bhaskar Jyoti Nath	Consultant	Baseline, additionality, monitoring methodology and monitoring plan.
19/03/2009	Sharad Saluja	Director	Technical description of Project activity
19/03/2009	Shri Lala Ram	Local people	Local stakeholders consultant
19/03/2009	Sayed Ahmed Khan	Local people	Local stakeholders consultant

7. Document References

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

/1/ PDD, version 1, dated – 20/10/2008 (ISHC PDD)
/2/ PDD, version 1.1 , dated -04/02/2009
/3/ PDD, version 1.2 , dated – 06/04/2009
/4/ PDD, version 1.3, dated - 31/08/2009 (Final PDD)
/5/ HCA, 4/27/2008-CCC dated 08/06/2009
/6/ MOC letter, dated – 07/04/2009
/7/ CER and financial calculation spreadsheet

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

/8/ Detailed Project Report, dated - December-2007
/9/ P.O. of biomass boiler, dated - 22/01/08
/10/ Offer from Cheema boiler for 15TPH coal fired boiler, dated - 05/01/2008
/11/ Offer from Cheema boiler for 15TPH biomass fired boiler. Dated - 15/01/2008
/12/ Board resolution letter for CDM, dated - 18/01/2008
/13/ Rice husk supplier quotation, dated – 23/11/07, 21/11/07
/14/ Coal supplier quotation, dated – 8/11/07
/15/ P.O of rice husk, dated – 01/10/208,01/11/2008
/16/ P.O. of coal(Invoice), dated – 01/04/07,25/08/07
/17/ Biomass Assessment Report, 2008-2009
/18/ Factory license no – ETA-77
/19/ Undertaking letter for No ODA involved in the project activity, dated – 25/03/09
/20/ Undertaking letter for no change in the technology, dated – 25/03/09
/21/ Internal audit procedures, dated – 20/03/09
/22/ Laboratory log book for Coal, dated 11/11/2007, 12/11/2007,
/23/ Laboratory log book for Biomass, dated – 13/11/2007,15/11/2007
/24/ Copy of interview letter with DNA, dated - 17/10/08
/25/ MOM with boiler supplier, dated – 21/12/2007
/26/ PCB consent to established letter, dated – 25/03/2009
/27/ Copy of invitation letter to district magistrate, dated on 28/08/08
/28/ Copy of invitation letter to gram panchayat, dated on 28/08/08
/29/ MOM of local stakeholders consultation and attendance sheet, dated – 28/08/08
/30/ Newspaper advertisement, Rajpath in English (dated on 05/07/08)., Rajpath in Hindi (dated on 10/07/08) and Pravada (dated on 16/07/08)
/31/ Contract with EVI for CDM activities, dated - 04/07/08
/32/ Instruction manual of Bomb calorimeter
/33/ Calibration certificate of Bomb calorimeter, dated – 24/07/09
/34/ Approval from director of boilers, U.P., dated - 18/06/08
/35/ ISO certificate, dated – 08/02/09
/36/ Offer from CDM advisor, dated - 08/04/08
/37/ Consent to establish from director of boilers,dated - 16/07/08
/38/ http://www.abe.psu.edu/extension/factsheets/h/H82.pdf
/39/ http://www.osti.gov/energycitations/servlets/purl/791079-K0YZWO/native/791079.PDF
/40/ http://www.soi.wide.ad.jp/class/20070041/slides/01/40.html
/41/ http://www.biomassenergycentre.org.uk/portal/page?_pageid=75,17306&_dad=portal&_schema=PORTAL
/42/ Copy of invoices for transportation cost of coal

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A.1 Annex 1: Local Assessment

This checklist is designed to provide confirmation of in-country data and information provided in the Project Design Document for **Biomass based steam generation project by Sterling Agro Industries Ltd.**

It serves as a "**reality check**" on the project that is completed by a local assessor from SGS India

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
1. Modalities of Communication for the project activity	MOC has been provided by the PP which has been found to be Ok..	MOC, dated - 07/04/2009	No action required
2. No ODA involved letter.	Undertaking letter for no ODA involved provided by the PP	Letter dated - 25/03/09	No action required
3. The chronology of planning and implementation of the project activity	This has been discussed with the project proponent and found to be inline.	Interviewed	No action required
4. Technical specification for the project activity	The technical specification of the project activity has been verified by physical inspection of the project activity and cross checked from the specification provided by the supplier and found to be Ok.	Physical inspection and P.O. of biomass boiler, dated - 22/01/08	No action required
5. Emission reduction calculation spreadsheet	PP has provided the emission reduction spreadsheet which has been checked and found to be OK.	CER spreadsheet/ document review	No action required
6. What are the other benefits getting by the project activity apart from CDM benefit and why these are not deducted in simple cost analysis?	This has been discussed with the project proponent and found that the project activity is not getting any kind of benefit.	Interviewed	No action required

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
7. Ownership license	The factory license has been verified to check the ownership of the project activity and found to be ok.	Factory license no – ETA-77	No action required
8. Proof required that the technology would not changed during the crediting period.	Undertaking letter for no change in technology has been provided by the PP which has been checked and found to be acceptable	Letter dated - 25/03/09	No action required
9. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable	The internal audits procedures has been checked and found to be satisfactory.	Internal audit procedures, dated – 20/03/09	No action required

A.2 Annex 2: Validation Checklist

NOTE: Please read the reporting requirements as detailed in AR6 (e.g. on applicability, baseline assessment and additionality etc) while completing related sections in this protocol

Requirement	Reference	Comments	Conclusion/CARs/CLs
1. All Parties involved have approved the project activity 1.1. Has the DNA of each Party involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval which confirms 1.1.1. The country is a Party to the Kyoto Protocol 1.1.2. Participation is Voluntary 1.1.3. The Host Party confirming that the proposed CDM project activity contributes to sustainable development of the country Non-Annex 1 Party shall submit a letter of approval 1.1.4. It refers to the precise proposed CDM project activity title in the PDD being submitted for registration	Annex 3, Clean Development Mechanism, Validation and Verification Manual, Version 01 (from this point forwarded referenced as VVM) - 49a-d /54a-b/125 Paragraph 37 CDM Modalities and procedures	India has ratified the Kyoto protocol on 26th August 2002 and is allowed to participate. Letter of Approval from Indian DNA is to be provided by the project proponent	CAR 1 Closed
○ The letter/s of approval are unconditional with respect to 1.1.1 to 1.1.4 above	VVM Para. 49/54	Pending CAR 01	Pending CAR 01 Closed

Requirement	Reference	Comments	Conclusion/CARs/CLs
2. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for a minimum of 30 days, and the project design document and comments have been made publicly available	VVM Para. 128 Marrakech Accords, CDM Modalities, §40	Provide information on the global stakeholder process: website: http://cdm.unfccc.int/Projects/Validation/DB/7JTCA65XUT78PM5NMNDU83PV0QS0LI/view.html Starting date : 23/10/2008 Closing date : 21/11/2008 Number of comments received:1	Y
3. The project design document is in accordance with the applicable CDM requirements for completing PDDs.	VVM Para. 57 Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	The PP has used the current version 3 in effect as of: 22 December 2006.	Y
4. The project participants shall submit a letter on the modalities of communication (MoC) before submitting a request for registration	EB-09 F_CDM_REG form	The letter on the modalities of communication (MoC) has to be submitted.	LAC Closed

Table 2 PDD

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
A. General Description of Project Activity				
A.1. Project Title				
A.1.1. Does the used project title clearly enable the reader to identify the unique CDM activity?	VVM Para.56 Guidelines for completing a CDM-PDD (PDD) section A.1	DR	Biomass based steam generation project by Sterling Agro Industries Ltd. and the title is unique.	Y
A.1.2. Is there an indication of a revision number and the date of the revision?	VVM Para.56 PDD section A.1	DR	This is the version 1 of the PDD dated 20/10/2008.	Y
A.2. Description of the Project Activity				
A.2.1. Does the description of the proposed CDM project activity as contained in the PDD sufficiently cover all relevant elements accurately?	VVM Para.59 PDD section A.2 see also A.4, A.4.3 and B.3	DR	The PDD is providing the information on purpose of project activity, type of technology used and contribution of project activity to the sustainable development. The technology used in the project activity is the installation of biomass based boiler to meet in house requirement of thermal energy and to utilize surplus available agro waste (rice husk).	Y
A.2.2. Does the information provide the reader with a clear understanding of the proposed CDM activity?	VVM Para.60 PDD section A.2 see also A.4, A.4.3 and B.3	DR	The information on the project activity has been clearly depicted in the PDD and gives a clear understanding of the proposed CDM project activity.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
A.2.3. Is all information provided consistent and in compliance with the actual situation or planning?	VVM Para.64 PDD section A.2 see also A.4, A.4.2 and B.3	DR	The actual situation and planning of the project activity will be checked during the site.	Pending site visit Closed
A.2.4. Is all information provided consistent with details provided in further chapters of the PDD?	VVM Para.64 PDD section A.2	DR	Pending to the closure of CARs/CLs in subsequent sections.	Pending CARs/CLs Closed
A.3. Project Participants				
A.3.1. Is the table required for the indication of project participants correctly applied?	VVM Para. 51 PDD section A.3	DR	Yes, the project participant correctly applied the required table. Name of the PP is Sterling Agro Industries Ltd.	Y
A.3.2. Is all information provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	VVM Para. 51 PDD section A.3	DR	Annex 1 of PDD mentions the name of project participants as Sterling Agro Industries Ltd.	Y
A.4. Technical Description of the Project Activity				

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? Are the latitude and longitude of the site indicated (decimal points)	VVM Para.64 PDD section A.4	DR	The project activity is located in India / Uttar Pradesh. Bhitouna : Longitude: 76°65'E Latitude : 27°82' N The Longitude and latitude should be in mention up to second degree place.The coordinate mentioned in the PDD are unable to trace. The value mention in the minute coordinate should not be more than 60.	CAR 2 Closed
A.4.2. Does the proposed CDM project activity involve the alteration of existing installations or process?	VVM Para.64 PDD section A.4	DR	The proposed project activity is a new project and it doesn't involve the alteration of existing installation.	Y
A.4.3. Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	VVM Para.64 PDD section A.4	DR	The ownership or license to operate the project activity at the site will be checked during the site visit.	LAC/Site visit Closed
A.4.4. Is the category(ies) of the project activity correctly identified?	VVM Para.64 PDD section A.4	DR	PDD, section B.2. clearly describe the identification of the project category.	Y
A.4.5. Is all information provided in compliance with actual situation or planning as available by the project participants?	VVM Para.64 PDD section A.4	DR	The actual situation and planning of the project activity will be checked during the site.	Site visit Closed

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
A.4.6. Is the table required for the indication of projected emission reductions correctly applied?	VVM Para.64 PDD section A.4	DR	Table for estimated amount of emission reduction is correctly filled.	Y
A.5. Debundling				
A.5.1. Is the small-scale project activity a debundled component of a large scale project activity	VVM Para. 134c	DR	The PDD mentions that the project proponent does not have any other registered or applied for registration CDM project activity in the 1 km area from the present project activity by same project participant within 2 years in same project category and technology. The same will be checked during the site visit.	Pending site visit Closed
A.5.2. If the project is a debundled component of a larger project, does the larger project fall within the limits for small-scale CDM project activities	VVM Para. 134c	DR	The project activity is not a de-bundled project activity as mentioned in the PDD. The same needs to be checked during the site visit.	Pending site visit Closed
A.6. Public Funding				
A.6.1. Does the information on public funding provided conform to the actual situation or planning as presented by the project participants?	PDD section A.4.4	DR	There is no public funding used in the project activity and declaration letter for no ODA diversion has to be provided by PP.	LAC/Site visit Closed

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
A.6.2. Is all information provided consistent with details provided by further chapters of the PDD (in particular annex 2)?	PDD section A.4.4	DR	Annex 2 also consistence that there will not be any public funding involve in the project activity.	Y
A.6.3. In case of public funding from Annex I Parties is it confirmed that such funding does not result in a diversion of official development assistance	PDD section A.4.4	DR	Declaration of no diversion has to be provided by PP.	LAC/Site visit Closed
B. Baseline and Monitoring Methodology				
B.1. Choice and Applicability				
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	VVM Para.68 PDD section B.1	DR	The project activity is using the Approved methodology AMS I.C. version 13, EB 38, dated- 28th March, 2008.	Y
B.1.2. Has the methodology (incl. the tools) been altered from the original version as referenced in the PDD?	VVM Para.69 PDD section B (B.1-B.2)	DR	No the methodology has not been altered from the original version as mentioned in the PDD.	Y
B.1.3. Does the project activity qualify as small scale project?	VVM Para. 134a	DR	The thermal generation capacity of the project activity is only 9.83 MW thermal which is lower then 45 MW thermal. Thus the project qualifies as small scale project.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.1.4. Is the category(ies) of the project activity correctly identified in accordance with Appendix B to the simplified modalities and procedures for small-scale CDM project activities?		DR	The category of the project activity is correctly identified in accordance with Appendix B to the simplified modalities and procedures for small scale CDM project activities in PDD, under section B.2..	Y
B.1.5. Is the selected simplified methodology applicable to the project activity in the PDD?	VVM Para.75/66a/68/73 PDD section B (B.1-B.2)	DR	The approved methodology I C is correctly applied for the proposed CDM project activity. The chosen baseline scenarios in the PDD will be cross checked at site visit	Pending Site visit Closed
B.1.6. Does the project activity conform to one of the approved small-scale categories?	VVM Para. 134b	DR	The project activity correctly fit into the small scale project categories. For I C component the estimated thermal generation capacity would be much lesser than the set limits i.e. 45 MW_{th} for the small scale projects. The plant records, default values and assumptions used for baseline estimation were cross checked with their sources at the site and it was concluded that baseline is conservative. Therefore the selection of project activity on the basis of emission reduction is legitimate and fine.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.1.7. Is the project activity a bundle of several small scale activities and if so does it contain any sub-bundles?		DR	To be checked during the site visit.	Pending Site Visit Closed
B.1.8. If the project activity is a bundle of several small scale activities, does the sum of the total bundle (including any subbundles) fall within the limits for small scale projects		DR	Pending site visit.	Pending Site Visit Closed
B.1.9. If the project activity is a bundle of several small scale activities, has the form with information related to the bundle been submitted and is it correctly used		DR	Pending site visit.	Pending Site Visit Closed
B.1.10. Is the discussion in the PDD in conformance with all applicability criteria of the applied methodology?	VVM Para.75/66b/68 PDD section B (B.1-B.2)	DR	The PDD discuss all the applicability criteria of the applied methodology AMS I C in relation to the proposed CDM project activity and provide the justification. However, the applicability criteria for the project activity need to be checked during the site visit.	Pending Site Visit Closed
B.2. Project Boundary				

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.2.1. Are all emission sources and gases related to the baseline scenario, project scenario and leakage clearly identified and described in a complete and transparent manner? Is there information on GHG emissions in proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology.	VVM Para.79/76 /67a PDD section B.3	DR	The project boundary clearly defines the component of project activity in the PDD. To be checked at site.	Pending Site visit Closed

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.2.2. In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with the tool to calculate emission factor of electricity system (wherever applicable) and the underlying methodology?	VVM Para.79 PDD section B.3	DR	Not applicable	NA
B.2.3. Does the project boundary include the physical delineation of the proposed CDM project activity?	VVM Para.78/79 PDD section B.3 also see section A.4.2	DR	The project boundaries are clearly defined in the PDD. To be checked at site.	Site visit Closed
B.2.4. Are the project's geographical boundaries and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	VVM Para.76/79 PDD section B.3 also see section A.4.2	DR	The spatial boundaries are defined in section B.3 of the PDD.	Y
B.3. Identification of the Baseline Scenario				

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.3.1. Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology and is the application of the methodology and the discussion and determination of the chosen baseline transparent?	VVM Para.67b.80/82/86 PDD Section B.4/B.5	DR	The PDD discuss the identification of the most likely baseline scenario as per the applied methodology AMS I.C., version 13.	Y
B.3.2. Are all tools/procedures in the methodology correctly applied to identify the most reasonable baseline scenario? This includes all potential realistic and credible baseline scenarios in the discussion taking into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	VVM Para.81/82/86a-d/83/84 PDD Section B.4/B.5	DR	PDD address all the potential scenarios which have a comparable output as the project including a description of the technology and one scenario include the project activity without CDM benefits.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.3.3. Is the choice of the baseline compatible with the available data?	VVM Para.86b-c/95 PDD Section B.4/B.5	DR	All the assumptions used for baseline selection will be checked on site.	Pending Site Visit Closed
B.3.4. Is conservativeness addressed in the way of identifying the baseline?	VVM Para.90 PDD Section B.4/B.5	DR	The conservativeness of the all the factors used for baseline estimation will be discussed at site.	Pending Site Visit Closed
B.3.5. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	VVM Para.90/91 PDD Section B.4/B.5	DR	The selected baseline represented the most likely scenario among other possible scenarios. However, this needs to be discussed during the site visit.	Pending Site Visit Closed
B.3.6. Is there a verifiable description of the baseline scenario? Does this include a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity?	VVM Para.86e/85 PDD Section B.4/B.5	DR	To be discussed during the site visit.	Pending Site Visit Closed
B.4. Additionality				

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.4.1. Does the PDD clearly demonstrate the additionality using the approach as specified in the methodology and by following all the required steps?	VVM Para.67d/95 PDD Section B.1/B.4/B.5	DR	Its is a small scale project and additionality has been proved on investment barrier, technological barrier, common practice analysis and other barriers.	Y
B.4.2. In case of using the additionality tool: Is the 'Additionality Tool' used in the PDD latest version? If an earlier version has been used, do the changes impact the discussion in the PDD? Are all steps followed in a transparent manner?	PDD Section B.1/B.4/B.5	DR	No additionality tool has been used in the proposed project activity.	Y
B.4.3. Has all information been backed up with references, sources and certification? Is the data presented credible and reliable with complete transparency to all available data and documentation?	VVM Para.93/91 PDD Section B	DR	To be discussed during the site visit.	Pending Site Visit Closed

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.4.4. Is the discussion on additionality and the evidence provided consistent with the starting date of the project? If the project activity start date is prior to the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project activity	VVM Para.102b PDD Section B.5	DR	Please provide document on starting date of project. Please provide the supporting document (preferably third party) that serious CDM was considered at the planning stage of the project activity. All evidences should be prior to the project start date as per EB 41, Annex 46. Please justify the delay in preparing the PDD for the project activity	CAR 4 Closed
B.4.5. If an investment analysis has been used, has it been shown that the proposed project activity is economically or financially less attractive than at least one other alternative without the revenue from the sale of CERs?	VVM Para. 106, 107, 109 112a-c PDD Section B.5	DR	NA	NA

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.4.6. If a benchmark is used, is it ensured that it is selected in accordance with the requirements of the tool /methodology and it represents standard returns in the market (not linked to the subjective profitability expectation or risk profile of a particular project developer).	VVM Para. 110 PDD Section B.5	DR	NA	NA

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.4.7. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this type of proposed project activity but would not have prevented the implementation of at least one of the alternatives?	VVM Para. 114 115a-b/116 PDD Section B.5	DR	Investment barrier: Kindly provide documentary evidences in support of all the parameters considered for calculation of investment barrier like Financial parameters, Technical parameters and sensitivity analysis. Kindly provided the spreadsheets for all the calculation done under investment barriers including the calculation done for sensitivity analysis. How sensitivity analysis comes under the investment barrier? Justify. Under sensitivity analysis, the calculation for change in unit cost of steam production with cost of biomass is based on +/-10% whereas the calculation for changes in unit cost of steam production with efficiency of boiler is based on 5%, moreover only decrease in 5% efficiency has been considered why not increased in 5% efficiency is not considered for changes in unit cost of steam production with efficiency of boiler?? Justify. Technological barrier: Kindly provide documentary evidence in support of technological barrier. Kindly provide documentary evidence in support of common practice analysis. Kindly provide evidence for First of its kind for the project activity. Other barriers: Clarify with evidence how- 1. Biomass availability is highly subjected to seasonal fluctuation due to the vagaries of nature and biomass residues are season dependent. 2. Collection, transportation and price fluctuation of biomass is a big constraint for project's successful operation and it may create availability issue whereas as per methodology AMS I.C., PP need to demonstrate surplus biomass availability (25% larger then the quantity of biomass utilized). Project proponent must identify the most strong barrier.	CAR 4 Closed
B.4.8. Is the discussion on additionality consistent with the identification of all plausible and credible baseline scenarios?	VVM Para. 105 PDD Section B.5	DR	Pending CAR 04	Pending CAR 04 Closed

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.4.9. Do the identified baseline scenarios include technologies and practices that include outputs or services comparable with the proposed CDM project activity. Do they also abide by the same applicable laws and legislations?	VVM Para. 105 PDD Section A.4.2/B.5	DR	To be checked during the site visit.	Pending SV Closed
B.4.10. Has it been shown that the project is not common practice?	VVM Para. 119a/b PDD Section B.5	DR	Pending CAR4	Pending CAR4 Closed
B.4.11. What are they key distinctions between the project activity and any similar projects that are widely used as common practice?	VVM Para. 118, 119c/d PDD Section B.5	DR	Pending CAR4	Pending CAR 04 Closed
B.5. Application of the Simplified Methodology				

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.5.1. Has the simplified methodology been applied correctly for determining **baseline emissions**?	VVM Para. 91d PDD Section B (B.6.1 -B.71)	DR	The methodology AMS I .C. applied correctly to determine the baseline emissions.	Y
B.5.2. Has the simplified methodology been applied correctly for determining **project emissions**?	VVM Para. 90/91d PDD Section B (B.6.2-B.71)	DR	The equation used for determining project emission is not clear as it has not been mentioned anywhere in the applied methodology AMS I.C	CAR 5 Closed
B.5.3. Has the simplified methodology been applied correctly for determining **leakage**?	VVM Para. 91d PDD Section B (B.6.2 -B.71)	DR	Kindly clarify with evidence the leakage as per the applied methodology as given in Table 6.Aproaches to rule out leakages (L1, L2, L3 &L4). Kindly provide the biomass assessment report. As per the methodology, PP need to define clearly the geographical boundary / region to procured biomass in the PDD and also mention that the region should not be changed during the crediting period.	CAR 5 Closed
B.5.4. Where applicable, has the simplified methodology been applied correctly for the **direct calculation of emission reductions?**	VVM Para 88/91d PDD Section B (B.6.2 -B.71)	DR	Pending closures to CAR/CLs above.	Pending CAR/CLs Closed

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.5.5. Where there is an option between different equations or parameters, has the methodological choices for the project been explained, have they been properly justified and are they correct?	VVM Para.89/90/91 PDD Section B (B.6.2 -B.71)	DR	Pending closures to CAR/CLs above.	Pending CAR/CLs Closed
B.5.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	PDD Sections B.5-C	DR	Data uncertainty will be discussed at site.	Pending Site Visit Closed
B.6. Ex-ante Data and Parameters Used				
B.6.1. Are the data provided in compliance with the methodology?	VVM Para. 91/67c PDD Section B.6.3B.6.4	DR	For Ex-ante data , the efficiency of baseline coal based boiler, supportive documents need to be provided by PP. Refer to the applied methodology ,page 3 ,Para 13.	CL 06 Closed

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.6.2. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	VVM Para. 91a/b PDD Section B.6.3/B.6.4	DR	Pending to the CAR above	Pending CL 06 Closed
B.6.3. Is the vintage of the baseline data correct?	PDD Section B.6.3/B.6.4	DR	Vintage of data will be discussed at site.	Pending Site Visit Closed
B.6.4. Is all the data appropriate and correctly applied to the CDM project activity?	VVM Para. 91c PDD Section B.6.3/B.6.4	DR	Pending CL06	Pending CL 06 Closed
B.6.5. Are data and parameters that are not being monitored and remained fixed throughout the crediting period appropriately assessed, correct, and will they result in conservative estimates?	VVM Para. 90 PDD Section B.6.3/B.6.4	DR	Pending CL 06	Pending CL 06 Closed
B.7. Calculation of Emissions Reductions				
B.7.1. Has the simplified methodology been applied correctly for determining **emission reductions**?	VVM Para. 91d PDD Section A.4.3/B.6	DR	The methodology applied correctly to determine emission reduction calculation. Subject to closer of CARs and CLs. The spreadsheet for calculation of emission reduction need to be checked at site visit.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.7.2. Are the emission reduction calculations documented in a complete and transparent manner?	VVM Para. 91e PDD Section B.6	DR	To be checked from spreadsheet.	Site visit Closed
B.7.3. Is the projection based on same procedures as used for later monitoring or acceptable alternative models?	PDD Section B.6	DR	No models have been used for projecting the project emissions.	Y
B.7.4. Is the calculation of the emission reduction correct?	VVM Para. 91e PDD Section B.6	DR	Pending closures to CARs/CLs above.	Pending CAR/CLs Closed
B.8. Emission Reductions				
B.8.1. Is the form/table required for the indication of projected emission reductions correctly applied?	PDD Section A.4.3/ Section B.6	DR	Yes, the table is correctly applied.	Y
B.8.2. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	PDD Section A.4.3/ Section B.6	DR	It is the future project and projections are in lined with time schedule. To be checked at site.	Y
B.9. Monitoring Methodology				

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.9.1. Does the monitoring methodology provide a consistent approach in the context of all parameters to be monitored and further information provided by the PDD? Are all parameters and data that are available at validation consistent with the simplified methodology. Has this data been interpreted and applied correctly?	VVM Para. 67e PDD Section B.7-B.8 see also Annex 4	DR	The monitoring plan does not mention the amount of each type of biomass fuel used, in the parameters to be monitored as para section 23, methodology I.C.	CAR 7 Closed
B.9.2. Does the monitoring methodology apply consistently the choice of the option selected for monitoring both of project and baseline emissions?	PDD Sections B and C	DR	Pending to CAR 7 above	Pending CAR 07 Closed
B.10. Data and Parameters Monitored				

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.10.1. Does the monitoring plan in the PDD comply with the simplified methodology? Provide for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?	VVM Para. 91a/91d/121/79 PDD Section B.7-B.7.2	DR	In PDD, section B.7.2. provided the collection and archiving of all relevant data necessary for estimation or measuring the emission reduction within the project boundary during the crediting period..	Y
B.10.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the simplified methodology applied?	PDD Section B.7-B.7.2/B.6.2	DR	The choices of project GHG indicators are looking reasonable.	*Y*
B.10.3. Will it be possible to determine the specified project GHG indicators?	PDD Section B.6.2-B.8		All the monitoring data is verifiable and accuracy of the data will be assured by regular calibration of the monitoring meters.	*Y*
B.10.4. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	PDD Section B.6.2-B.7.1	DR	The monitoring plan mentioned in section of B.7.1. of the PDD talks about the data collection and archiving.	*Y*

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.10.5. Is the information given for each monitoring variable by the presented table sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records?	PDD Section B.6.2-B.7.1	DR	All the monitoring parameters mention the sufficient information.	Y
B.10.6. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	PDD Section B.5-B.7.2	DR	The monitoring plan is in current good practice.	Y
B.10.7. Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	PDD Section B.6.2-B.7.1	DR	All the formula used to determine project emission are clearly indicated and in compliance with the monitoring methodology. Subject to closer of CAR 5.	Pending CAR 5 Closed
B.11. Quality Control (QC) and Quality Assurance (QA) Procedures				
B.11.1. Is the selection of data undergoing quality control and quality assurance procedures complete?	VVM Para. 121 Refer to all data within the PDD Inc. B.6.2-B.7.1	DR	No QA/QC procedure is mentioned for the parameter Qfossil,I,y (Quantity of fossil fuel of type i combusted in year y).	CAR 7 Closed

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.11.2. Is the belonging determination of uncertainty levels done correctly for each ID in a correct and reliable manner?	Refer to all data within the PDD Inc. B.4/B.7.2/Annex 4	DR	The uncertainly of data will be covered into QA/QC of each parameter.	Y
B.11.3. Are quality control procedures and quality assurance procedures sufficiently described to ensure the delivery of high quality data?	VVM Para 121	DR	The QA/QC procedures of all the data is defined in the given section of the PDD.	Y
B.11.4. Is it ensured that data will be bound to national or internal reference standards?	VVM Para. 86d	DR	All default values will be taken from international sources and are reproducible in any case and there are no site specific adjustment was done.	Y
B.11.5. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission reductions?	VVM Para. 19	DR	The monitoring of parameters will be done by calibrated third party meters and there are no chances for the overestimating the emission reduction.	Y
B.12. Operational and Management Structure				
B.12.1. Is the authority and responsibility of project management clearly described?	PDD Section B.8/Annex 1	DR	PDD, B.8., defines the persons responsible for project management.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.12.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PDD Section B.8/Annex 1	DR	The authority and responsibility for registration is mentioned in section B.8 whereas the authority and responsibility for monitoring, measurement and reporting is mentioned in section B.7.2.	Y
B.12.3. Are procedures identified for training of monitoring personnel?	PDD Section B.8/Annex 1	DR	No procedures are identified for training of monitoring personnel in the PDD. To be discussed at site.	Site visit. Closed
B.13. Monitoring Plan (Annex 4)				
B.13.1. Is the monitoring plan developed in a project specific manner clearly addressing the unique features of the CDM activity?	VVM Para. 122a	DR	Annex 4 provided the sufficient information and the CDM specific monitoring.	Y
B.13.2. Does the monitoring plan completely describe all measures to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality?	VVM Para. 122b	DR	In section B.7.2 of the PDD described all the measures to be implemented for monitoring plan.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.13.3. Does the monitoring plan provide information on monitoring equipment and respective positioning in order to safeguard a proper installation?	VVM Para. 122b	DR	This is mentioned in section B.7.2 in the PDD.	Y
B.13.4. Are procedures identified for calibration of monitoring equipment?	VVM Para. 122a-c	DR	Procedures for identification of calibration of monitoring equipment are mentioned in section B.7.2 in the PDD.	Y
B.13.5. Are procedures identified for maintenance of monitoring equipment and installations?	VVM Para. 122a-c	DR	The operation department will be responsible for maintenance of monitoring equipments and installation.	Y
B.13.6. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	VVM Para. 122a-c	DR	The procedures for data collection and record keeping are mentioned in section B.7.2 in the PDD..	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.13.7. Are procedures identified for dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems?	VVM Para. 122a-c	DR	This is mentioned in section B.7.2 in the PDD.	Y
B.13.8. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	VVM Para.122a-c	DR	Data will be reviewed at different levels for its right collection and archiving, before submitting to the emission reduction calculations.	Y
B.13.9. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	VVM Para. 122a-c	DR	Data will be reviewed at different levels for its right collection and archiving, before submitting to the emission reduction calculations.	Y
B.13.10. Describe the ability of the project participants to implement the monitoring plan.	VVM Para. 122c	DR	The project proponent has clearly incorporated all the parameters required under the monitoring as per the applied methodology and the description of the monitoring plan in section B.7.2 shows the ability of the proponent to implement the monitoring plan.	Y
B.14. Baseline Details				
B.14.1. Is there any indication of a date when determining the baseline?	PDD Section B.8/Annex 3	DR	The date of baseline submission is written as 23/07/2008 in section B.8 of the PDD, which is inline to the date of PDD submission.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.14.2. Is this consistent with the time line of the PDD history?	Also see revision history of the PDD	DR	This is in consistency with the time line of the PDD history.	Y
B.14.3. Is all data required provided in a complete manner by annex 3 of the PDD?	PDD Annex 3	DR	Yes, annex 3 provides all data require in a complete manner	Y
C. **Duration of the Project / Crediting Period**				
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	VVM Para. 102a-c PDD Section C.1.1/C.1.2	DR	The project start date is 22/01/2008 and operational life is 20 years. Proof for starting date needs to be provided by the project proponent. Pending CAR 4	Pending CAR 4 Closed
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	VVM Para. 102a PDD Section C.2/C.2.1/C.2.2	DR	10 yr crediting year is fixed for the project activity.	Y
C.1.3. Does the project's operational lifetime exceed the crediting period	VVM Para. 102a PDD Section C.1.2/C.2.1.1/C.2.1.2	DR	The operational life time exceed the crediting period.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
C.1.4. Does the start date indicate whether this is a new project activity or a pre-existing project activity?	VVM Para. 102a/ 98 PDD Section C.1.1/C.2.1.1	DR	The proposed CDM project activity is a pre- existing project activity.	Y
D. Environmental Impacts				
D.1.1. Does the project comply with environmental legislation in the host country?	VVM Para. 131/134d PDD section D	DR	The environmental legislation in the host country will be checked on the site.	Y
D.1.2. Has an analysis of the environmental impacts of the project activity been sufficiently described?	VVM Para. 131 PDD section D	DR	The project activity does not seem to have any kind of environmental impacts. To be checked at site.	Y
D.1.3. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	VVM Para. 131 PDD section D	DR	Evidence to be provided that no EIA required for this project activity. Consent to establish and Consent to operate from state pollution control board need to be provided for the project activity.	CL08 Closed
D.1.4. Will the project create any adverse environmental effects?	VVM Para. 131 PDD section D	DR	It doesn't look like that project activity will produce any kind of environmental effects but it will also be discussed at site with the technology provider.	Y
D.1.5. Are trans-boundary environmental impacts considered in the analysis?	VVM Para. 131 PDD section D	DR	There are no tranboundary environmental impacts considered in the analysis.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
D.1.6. Have identified environmental impacts been addressed in the project design?	VVM Para. 131 PDD section D	DR	There are no environmental impacts envisaged in the project activity.	Y
E. Stakeholder Comments				
E.1.1. Have relevant stakeholders been consulted?	VVM Para. 128a PDD Section E.1	DR	Relevant local stakeholders have been consulate .They are District magistrate, Local gram panchayat and local community.	Y
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	VVM Para. 128a PDD Section E.1	DR	Evidence in support of media used (local newspaper) and invitation letter for local stakeholders consultant need to be provided by PP. Kindly provide the MOM of local stakeholders consultant.	CL09 Closed
E.1.3. Is the undertaken stakeholder process described in a complete and transparent manner?	VVM Para. 128b PDD Section E.1	DR	Pending CL09.	Pending CL09. Closed
E.1.4. Is a summary of the stakeholder comments received provided?	VVM Para. 128b PDD Section E.2	DR	The summary of stakeholders' comments will be discussed at site.	Pending CL09. Closed
E.1.5. Has due account been taken of any stakeholder comments received?	VVM Para. 128b PDD Section E.3	DR	Received stakeholders comments received will be discussed at site visit.	Pending CL09. Closed

References

Reference ID	Title / Description	Comments
/3/	PDD, version 1, dated – 20/10/2008 (ISHC PDD)	Table 2 section A, B, C, D and E
/4/	PDD, version 1.1 , dated -04/02/2009	Table 2 section A, B, C, D and E
/3/	PDD, version 1.2 , dated – 06/0 4/2009	Table 2 section A, B, C, D and E
/4/	PDD, version 1.3, dated – 31/08/2009	Table 2 section A, B, C, D and E
/5/	HCA, 4/27/2008-CCC dated 08/06/2009	Checked for project title and project participant name
/6/	MOC letter, dated – 07/04/2009	Checked for contact information
/7/	CER and financial calculation spreadsheet	Checked for emission reduction calculations and financial calculations
/8/	Detailed Project Report, dated - December-2007	Checked for the assumptions, earliest real action of CDM
/9/	P.O. of biomass boiler, dated - 22/01/08	Checked for purchase order
/10/	Offer from Cheema boiler for 15TPH coal fired boiler, dated - 05/01/2008	Check for financial calculation & CDM consideration
/11/	Offer from Cheema boiler for 15TPH biomass fired boiler. Dated - 15/01/2008	Check for financial calculation & CDM consideration
/12/	Board resolution letter for CDM, dated - 18/01/2008	Checked for serious CDM consideration
/13/	Rice husk supplier quotation, dated – 23/11/07, 21/11/07	Check for financial calculation
/14/	Coal supplier quotation, dated – 8/11/07	Check for financial calculation
/15/	P.O of rice husk, dated – 01/10/208,01/11/2008	Check for financial calculation
/16/	P.O. of coal, dated – 01/04/07,25/08/07	Check for financial calculation

Reference ID	Title / Description	Comments
/17/	Biomass Assessment Report, 2008-2009	Check for surplus availability of biomass
/18/	Factory license no – ETA-77	Checked for ownership
/19/	Undertaking letter for No ODA involved in the project activity, dated – 25/03/09	Checked for No ODA.
/20/	Undertaking letter for no change in the technology, dated – 25/03/09	Checked for no change in technology
/21/	Internal audit procedures, dated – 20/03/09	Checked for internal audit procedure
/22/	Laboratory log book for Coal, dated 11/11/2007, 12/11/2007,	Checked for calorific value of Coal
/23/	Laboratory log book for Biomass, dated – 13/11/2007,15/11/2007	Checked for calorific value of biomass
/24/	Copy of interview letter with DNA, dated - 17/10/08	Checked for parallel effort for CDM
/25/	MOM with boiler supplier, dated – 21/12/2007	Checked for technological barriers for boiler
/26/	PCB consent to established letter, dated – 25/03/2009	Checked for legal compliance
/27/	Copy of invitation letter to district magistrate, dated on 28/08/08	Checked for stakeholders process
/28/	Copy of invitation letter to gram panchayat, dated on 28/08/08	Checked for stakeholders process
/29/	MOM of local stakeholders consultation and attendance sheet, dated – 28/08/08	Checked for stakeholders process
/30/	Newspaper advertisement, Rajpath in English (dated on 05/07/08)., Rajpath in Hindi (dated on 10/07/08) and Pravada (dated on 16/07/08)	Checked for stakeholders process
/31/	Contract with EVI for CDM activities, dated - 04/07/08	Checked for CDM parallel effort
/32/	Instruction manual of Bomb calorimeter	Checked for NCV calculation
/33/	Calibration certificate of Bomb calorimeter, dated – 24/07/09	Checked for NCV calculation
/34/	Approval from director of boilers, U.P., dated - 18/06/08	Checked for legal compliance
/35/	ISO certificate, dated – 08/02/09	Checked for QA/QC procedures
/36/	Offer from CDM advisor, dated - 08/04/08	Checked for CDM parallel effort

Reference ID	Title / Description	Comments
/37/	Consent to establish from director of boilers,dated - 16/07/08	Checked for legal compliance
/38/	http://www.abe.psu.edu/extension/factsheets/h/H82.pdf	Checked for technological barriers
/39/	http://www.osti.gov/energycitations/servlets/purl/791079-K0YZWO/native/791079.PDF	Checked for technological barriers
/40/	http://www.soi.wide.ad.jp/class/20070041/slides/01/40.html	Checked for technological barriers
/41/	http://www.biomassenergycentre.org.uk/portal/page?_pageid=75,17306&_dad=portal&_schema=PORTAL	Checked for other barriers
/42/	Copy of invoice for transportation cost of coal	Checked for transportation cost of coal

A.3 Annex 3: Overview of Findings

Findings Overview

Findings from validation of **Biomass based steam generation project by Sterling Agro Industries Ltd**

Each Table below represents a finding from the validation assessment. The findings are numbered consecutively, approximately in the order that they have been identified and irrespective of the nature of the findings, for eg.: CAR #1, CAR #2, CL #3, FAR #4 etc.

Description of Table:

Type	Findings are either Corrective Action Requests (CARs), Clarification Requests (CLs), and Forward Action Request (FARs). A corrective action request (CAR) is raised if one of the following occurs: I. The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions; II. The CDM requirements have not been met; III. There is a risk that emission reductions cannot be monitored or calculated. A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met A forward action request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.
Lead Assessor Comments	Details the content of the finding
Ref	Refers to the item number in the Validation Protocol
Response	Please insert response to finding, starting with the date of entry.

Please Note: This is an open list and more findings may be added as validation progresses.

Responses to each Finding and relevant associated documentation should be recorded in this form by the Client and send back to the Lead Assessor in one submission to SGS (exception of finding linked to Letter of Approval, which can be submitted separately).

SGS reserves the right to review the associated fees and timeline if:

- more than one response submission is received from the Client
- a finding (CL/CAR), raised by the Lead Assessor prior to Technical Review stage, is not closed within 30 days of notification to the Client by SGS.

Rows for comments and further response will be appended to the table until the Findings has been addressed to the satisfaction of the Lead Assessor.

Findings Overview Summary

	CARs	CLs	FARs

Total Number raised	05	04	0

Deadline for submission of Response by Client[1]: *DD/MM/YYYY*

Date:	13/11/2008		Raised by:	Pankaj Mohan	
Type:	CAR	Number:	01	Reference:	Table 1
Lead Assessor Comment:			**Date:** 13/11/2008		
Kindly provided the letter of Approval from Host Country (India).					
Project Participant Response:			**Date:** 17/12/08		
[Note to PP: Insert your Response to SGS Finding here]					
Documentation Provided by Project Participant:					
Information Verified by Lead Assessor:					
Reasoning for not Acceptance or Acceptance and Close Out:			**Date:** 21/01/2009		
The letter of Approval from Host Country (India) is still pending. CAR 1 is open					
Project Participant Response:			**Date:** *04/02/09*		
This is under process.					
Documentation Provided by Project Participant:					
Information Verified by Lead Assessor:					
Reasoning for not Acceptance or Acceptance and Close Out:			**Date:** 11/02/2009		
The letter of Approval from Host Country (India) is still pending. CAR 1 is open					
Project Participant Response:			**Date: 06/04/09**		
This is under process					
Documentation Provided by Project Participant:					
Information Verified by Lead Assessor:					
Reasoning for not Acceptance or Acceptance and Close Out:			**Date:** 19/05/2009		
The letter of Approval from Host Country (India) is still pending. CAR 1 is open					
Project Participant Response:			**Date:** *11/06/09*		
The letter of Approval from Host country (India) is provided.					
Documentation Provided by Project Participant:					
Information Verified by Lead Assessor:					
The HCA letter for the proposed CDM project activity has been verified as per the VVM guidelines and found to be ok					
Reasoning for not Acceptance or Acceptance and Close Out:					
the proposed project activity. The reference number for the same is 4/27/2008-CCC dated 08/06/2009. The name of the project activity mentioned in HCA is the same as in the section A.1 of the revised PDD and is accepted. Thus, CAR 01 was closed.					
Acceptance and Close out by Lead Assessor:			**Date:** *29/06/2009*		

[1] Response to all findings with relevant associated documentation to be sent to SGS in one submission.

Date:	13/11/2008		Raised by:	Pankaj Mohan		
Type:	CAR	Number:	02		Reference:	A.4.1.
Lead Assessor Comment:				**Date:** 13/11/2008		
The Longitude and latitude should be mention up to second degree place. The coordinate mentioned in the PDD are unable to trace. The value mention in the minute coordinate should not be more than 60.						
Project Participant Response:				**Date:** 17/12/08		
The geographical location of the plant is between Longitude $78^0$42'00'' East and Latitude $27^0$48'00'' North. The same has been corrected in the PDD.						
Documentation Provided by Project Participant:						
Revised PDD						
Information Verified by Lead Assessor:						
The geographical coordinates are found to be correct.						
Reasoning for not Acceptance or Acceptance and Close Out:				**Date:** 21/01/2009		
PP has corrected the geographical coordinates. The revised PDD doesn't mention the revision no. and date as per the CDM PDD guidelines. Thus, CAR 2 is open.						
Project Participant Response:				**Date:** *04/02/09*		
The revision number and date has been mentioned in the revised PDD.						
Documentation Provided by Project Participant:						
Revised PDD, version 1.1, dated – 04/02/2009						
Information Verified by Lead Assessor:						
The revised PDD has been checked and found that the revision no and date has been mentioned as per CDM PDD guidelines.						
Reasoning for not Acceptance or Acceptance and Close Out:						
PP has revised the PDD and mentioned the revision no and date as per the CDM PDD guidelines. Thus, CAR 2 was closed.						
Acceptance and Close out by Lead Assessor:				**Date:** 11/02/2009		

Date:	13/11/2008		Raised by:	Pankaj Mohan		
Type:	CL	Number:	03		Reference:	A.4.8/ A.4.9
Lead Assessor Comment:				**Date:** 13/11/2008		
PDD does not mention extensive initial training and maintenance efforts in order to work as presumed during the project period. No provisions are mentioned in the PDD for meeting training and maintenance needs.						
Project Participant Response:				**Date:** 17/12/08		
The training and maintenance for data monitoring, collection, data archiving and calibration of equipments for the project activity has been described in section B.7.2 of the PDD.						
Documentation Provided by Project Participant:						
• Revised PDD.						
Information Verified by Lead Assessor:						
Reasoning for not Acceptance or Acceptance and Close Out:				**Date:** 21/01/2009		
PDD does not mention extensive initial training and maintenance efforts in order to work as presumed during the project period. No provisions are mentioned in the PDD for meeting training and maintenance needs. Thus, CL 03 is open.						
Project Participant Response:				**Date:** *04/02/09*		
The needs of training and maintenance efforts have been described in section B.7.2 under heading "**Personnel training**" and "**Maintenance of instruments and equipments**" of the revised PDD.						
Documentation Provided by Project Participant:						
Revised PDD, version 1.1, dated – 04/02/2009						

Information Verified by Lead Assessor:	
The revised PDD has been checked and found that training and maintenance efforts have been mentioned in section B.7.2.	
Reasoning for not Acceptance or Acceptance and Close Out:	
PP has revised the PDD and mentioned the training and maintenance efforts in section B.7.2 which is found to be satisfactory. Thus, CL 03 was closed.	
Acceptance and Close out by Lead Assessor:	**Date:** 11/02/2009

Date:	13/11/2008		Raised by:	Pankaj Mohan		
Type:	CAR	Number:	04		Reference:	B.4.1./B.4.4.
Lead Assessor Comment:					**Date:** 13/11/2008	

Please provide PO copy of Biomass fired Boiler for the starting date of project activity (22/01/2008) as mentioned in the PDD.

Please provide the supporting document (preferably third party) that serious CDM was considered at the planning stage of the project activity. All evidences should be prior to the project start date as per EB 41, Annex 46.

Investment barrier:

Kindly provide documentary evidences in support of all the parameters considered for calculation of investment barrier like Financial parameters, Technical parameters and sensitivity analysis.

Kindly provided the spreadsheets for all the calculation done under investment barriers including the calculation done for sensitivity analysis.

Under sensitivity analysis, the calculation for change in unit cost of steam production with cost of biomass is based on +/-10% whereas the calculation for changes in unit cost of steam production with efficiency of boiler is based on decrease in 5% efficiency has been considered why not increase in 5% efficiency is considered for changes in unit cost of steam production with efficiency of boiler?? Justify.

Technological barrier:

Kindly provide documentary evidence in support of technological barrier.

Common Practice Analysis:

Kindly provide documentary evidence in support of common practice analysis. Kindly provide evidence for First of its kind in the region for the project activity.

Other barriers:

Clarify with evidence how-

1. Biomass availability is highly subjected to seasonal fluctuation due to the vagaries of nature and biomass residues are season dependent.

2. Collection, transportation and price fluctuation of biomass is a big constraint for project's successful operation and it may create availability issue whereas as per methodology AMS I.C., PP need to demonstrate surplus biomass availability (25% larger then the quantity of biomass utilized). Kindly provide the biomass assessment report.

Project Participant Response:	**Date:** 17/12/08

The PO copy of biomass fired boiler for starting date of the project activity is provided.
The copy of board resolution dated on 18th January 2008 on serious CDM consideration is provided.
Investment barrier: The following documents are provided in support of all technical and financial parameters considered for calculation of investment barrier:

1. Offer for 15 TPH coal fired boiler from Cheema boiler
2. Offer for 15 TPPH biomass fired boiler from Cheema boiler
3. PO copy of biomass fired boiler
4. Coal quotation from Mateshwari enterprise
5. Husk quotation from Goyal traders
6. Husk quotation from Palliwal traders
7. PO copy of coal dated on 1st April 2007, 25th August 2007 and 25th September 2008.
8. PO copy of husk dated on 1st October 2008 and 1st November 2008.
9. The spreadsheets for all the calculation done under investment barriers including the calculation done for sensitivity analysis.

Sensitivity Analysis: The increase in 5% boiler efficiency has been considered in the sensitivity analysis of the revised PDD.

Technological barrier: The references are mentioned in the PDD.

Documentation Provided by Project Participant:

- Offer for 15 TPH coal fired boiler from Cheema boiler
- Offer for 15 TPH biomass fired boiler from Cheema boiler
- PO copy of biomass fired boiler
- Coal quotation from Mateshwari enterprise
- Husk quotation from Goyal traders
- Husk quotation from Palliwal traders
- PO copy of coal dated on 1st April 2007, 25th August 2007 and 25th September 2008.
- PO copy of husk dated on 1st October 2008 and 1st November 2008.

http://www.osti.gov/energycitations/servlets/purl/791079-K0YZWO/native/791079.PDF
http://www.abe.psu.edu/extension/factsheets/h/H82.pdf
http://www.osti.gov/energycitations/servlets/purl/791079-K0YZWO/native/791079.PDF

Information Verified by Lead Assessor:

The P.O. of biomass boiler has been verified for the start date and found that it is the same date as mentioned in the PDD.The offer letter from Cheema boilers for 15 TPH coal fired boiler and 15 TPH biomass fired boiler has been checked for the technical specification. The P.O. document for coal and rice husk provided by the PP has been verified and found to be inline.
The cost of coal and rice husk from the quotation of rice husk suppliers has been verified.
Spreadsheet for CER calculation has been verified.

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 21/01/2009

Please provide the supporting document (preferably third party) that serious CDM was considered at the planning stage of the project activity. All evidences should be prior to the project start date as per EB 41, Annex 46 as the board resolution is not enough evidence with respect to serious CDM consideration. Kindly provide the sources (with documentary evidences) for the values considered under Investment barrier which are Project cost, O&M , Depreciation , Insurance and PLF. In the spreadsheet provided by the PP, the efficiency of boilers is taken as for coal based boiler = 83% and biomass based boiler = 78% whereas as per the technical specification of boiler provided by the PP it has been mentioned as for coal based boiler = 83 +/-2% and for biomass based boiler = 76+/- 2% so PP need to consider either 83% & 76% or 85% & 78% whichever is more conservative. Kindly provide the sources with documentary evidences as mentioned in the spreadsheet for (i) Calorific Value of coal and biomass. (ii) Feed water temperature PP need to follow EB 41 Annex 45 para 17 while considering the sensitivity analysis (the calculation for changes in unit cost of steam production with efficiency of boiler should be based on +/- 10 %). PP need to provide the spreadsheet for sensitivity analysis. Kindly provide documentary evidence in support of common practice analysis. Kindly provide evidence for First of its kind in the region for the project activity. **Other barriers**: Clarify with evidence how - 1. Biomass availability is highly subjected to seasonal fluctuation due to the vagaries of nature and biomass residues are season dependent.. 2. Collection, transportation and price fluctuation of biomass is a big constraint for project's successful operation and it may create availability issue whereas as per methodology AMS I.C., PP need to demonstrate surplus biomass availability (25% larger then the quantity of biomass utilized). Kindly provide the biomass assessment report. Thus, CAR 04 is open.
Project Participant Response: **Date:** *04/02/09*

As per EB 41, Annex 46, the project activity falls under "**C. Existing project activities**" as the start date of the project activity is 22/01/08. As per EB 41, Annex 46, PP satisfies the following elements to demonstrate that the CDM was seriously considered in the decision to implement the project activity.

a. ***The pp indicates awareness of the CDM prior to the project activity:*** *Copy of* ***Board resolution, Detailed project report*** *(Page no.27, 28****) and Biomass assessment report*** *have been provided in support of CDM consideration.*

b. ***The project participant indicates, by means of reliable evidence, that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation:*** *The pp* seriously considered the CDM benefits before implementation of the project. A detailed chronology of events has been mentioned in section B.5 of the revised PDD. The following documents are provided in support to secure CDM status for the project in parallel with its implementation:

1. Copy of Agreement with Consultant (EVI)
2. Copy of News Paper advertisements published in Hindi namely Rajpath (dated on 10/07/08) and Pravada (dated on 16/07/08) and in English namely Rajpath (dated on 05/07/08).
3. Agreement copy with DOE
4. Copy of office memorandum subject to interview with MoEF.

Detailed Project report (DPR) is provided in support of project cost. The values of parameters like O & M, Depreciation, Insurance and PLF have been revised. Insurance is considered under O & M in the revised PDD. The source for the values has been mentioned in the revised PDD and spreadsheet.
As per the applied methodology, Page 3, para 13, Maximum efficiency of 100% of baseline coal based boiler has been considered in emission reduction calculation in the revised PDD and spread sheet. And to be on more conservative side, the design efficiency 83% of coal based boiler (As per offer for 15TPH coal fired boiler from Cheema boiler) and 76% (As per PO of boiler and As per offer for 15TPH biomass fired boiler from Cheema boiler) has been considered to evaluate the project financial viability in terms of cost comparison analysis in the revised PDD and Spread sheet.
The sources for
(i) **Calorific Value of coal and biomass:** Log book maintained in plant laboratory. The copy of same is provided.
(ii) **Feed water temperature:** Bureau of Energy Efficiency (BEE) Handbook for boilers (Page no 49). The copy of same is provided.

Sensitivity Analysis: The +/- 10% boiler efficiency has been considered in the sensitivity analysis of the revised PDD. The revised PDD and Spread sheet for sensitivity analysis is provided.

Common practice analysis: Project additionality is determined based on Investment barrier, Technological barrier and other barriers. Common practice analysis has not been considered to explain the project additionality in the revised PDD.

Other barriers:

a. **Biomass availability is highly subjected to seasonal fluctuation due to the vagaries of nature and biomass residues are season dependent:** The availability of biomass varies as per the availability during season and off-season. It depends upon climatic conditions and irrigation status of the region. The temperature variation in the area is from a maximum of 43 degree C in summers to a minimum of 5 degree C in the winters. The monsoon season in the project region generally lasts from June to September. Please refer to the Page nos 5, 14, 15, of biomass assessment report. The biomass assessment report is provided.

b. The rice husk required for the project activity would be 27340MT/Yr and as per the biomass assessment report the area selected for biomass procurement holds a surplus availability 275017 MT of rice husk per annum. The biomass assessment report is provided.

Documentation Provided by Project Participant:

Information Verified by Lead Assessor:
The biomass assessment report has been verified and found that the total biomass generation in the studied region is 6355529 MT/annum .The total consumption of biomass in the region is 1492672 MT/annum. The total biomass requirement for the proposed CDM project activity is 23309.00 MT/annum. Thus, the total consumption of biomass including the project activity is 1515981.00 MT/annum and after the consumption, the surplus availability of biomass is 4839548.00 MT/annum which is more than 25% .of the biomass required for the proposed CDM project activity. Thus, PP has clearly demonstrated the surplus availability of biomass in the region which has been found to be satisfactory.

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 11/02/09
Kindly clarify how considering 83% biomass boiler efficiency and 76% coal based boiler is more conservative. It is not clear why PP has taken the parameters like Cost of equity, O&M, Depreciation and PLF from CERC as the proposed CDM project involves steam generation for in house process use and not for the generation of electricity. Kindly clarify/justify. In the DPR for the project activity , CDM benefits has been mentioned which indicate the awareness of CDM prior to project activity but how it was envisage that the project would generate 22,000CERs annually as per page 27 & 28 of DPR.Also, in page 21 of DRP it has been mentioned that the project would generate 25,000CERs annually. Kindly clarify. On what basis these CER values have been arrived. Kindly provide the spreadsheet for CER calculation along with the assumptions. In the DPR it has been mentioned that the unit shall work for 300 days, however, in the spreadsheet 320 days (7680 hrs) has been considered. Kindly clarify. Kindly provide the sources with documentary evidences as mentioned in the spreadsheet for Calorific Value of coal and biomass.(Log book is not made available) **Other barriers**: Clarify with evidence how – 1. Biomass availability is highly subjected to seasonal fluctuation due to the vagaries of nature and biomass residues are season dependent.(Till now biomass assessment report was not available) 2. As per the specification of boiler supplier 100 % coal can be used in the project activity. Please justify how biomass unavailability is a risk to the project activity 3. Collection, transportation and price fluctuation of biomass is a big constraint for project's successful operation and it may create availability issue whereas as per methodology AMS I.C., PP need to demonstrate surplus biomass availability (25% larger then the quantity of biomass utilized). Kindly provide the biomass assessment report. .(Till now biomass assessment report was not available) Thus, CAR 04 is open.	

Project Participant Response:	**Date: 06/04/09**
To be on more conservative side, the coal fired boiler efficiency is considered as 81% as per the supplier quotation and for the biomass fired boiler it is considered as 78% in the revised PDD and Spreadsheet. *The PP has taken the parameters like cost of equity, O & M, depreciation and PLF from Detailed project report in the revised PDD and spread sheet.* *The DPR was prepared by. As per the discussion with "Agrawal & Associates", the difference in CER is because of PLF considered for CER estimation. The detail of financial analysis and CER estimation along with the assumptions is mentioned in the DPR.* *As per the discussion held with "Agrawal & Associates", 320 days is considered for financial analysis. The unit shall work for 320 days. It is a typographical error in the DPR.* *For fuel calorific value, log book maintained in plant laboratory is provided.* *The biomass assessment report is provided.* The project activity involves the installation of biomass based boiler with an installed capacity of 15 TPH which main objective is to avoid use of coal in steam generation. The main fuel (biomass) used is rice husk along with other agriculture residues as available in the region. Therefore, the success of the project activity depends on the availability of the biomass in the region.	

Documentation Provided by Project Participant:

[1. *Log book maintained in the plant laboratory* 2. *Revised PDD, Version no. 1.2, dated 06/04/09* 3. *Revised CER calculation spread sheet dated 06/04/09*
Information Verified by Lead Assessor:
PP has revised the PDD and spreadsheet which consider the conservative values for efficiency of biomass and coal fire boiler which has been found to be satisfactory.PP has consider the parameters like cost of equity, O & M, depreciation and PLF from DPR which ahs been checked and found to be correct. The clarification provided by the PP on the differences in CER values in the different section of the DPR is found to be satisfactory.PP has provided the log book for calorific value of coal and biomass which was found to be OK. PP has provided the biomass assessment report which has been checked and found to be OK.
Reasoning for not Acceptance or Acceptance and Close Out: **Date:** 19/05/2009
Kindly clarify why Common practice analysis has been removed from the revised PDD. Thus, CAR 04 is open.
Project Participant Response: **Date:** *11/06/09*
Even though it is common knowledge amongst the industries operating in the region, there is no publicly available information as sought by DOE. Hence, PP is not referring to this aspect in the revised PDD.
Documentation Provided by Project Participant:
Information Verified by Lead Assessor:
PP has provided justification on the removal of common practice analysis from the PDD which has been found to be reasonable.
Reasoning for not Acceptance or Acceptance and Close Out:
The justification provided by the PP on the removal of common practice analysis from the PP was found to be reasonable and thus, CAR 04 was closed out.
Acceptance and Close out by Lead Assessor: **Date:** 29/06/2009

Date:	13/11/2008		Raised by:	Pankaj Mohan	
Type:	CAR	Number:	05	Reference:	B.5.2./ B.5.3.
Lead Assessor Comment:				**Date:** 13/11/2008	
The equation used for determining Project Emission is not clear as it has not been mentioned anywhere in the applied methodology AMS I.C. Kindly clarify with evidence the leakage as per the applied methodology as given in Table 6.Aproaches to rule out leakages (L1, L2, L3 &L4). As per the methodology AMS 1C, PP need to define clearly the geographical boundary / region to procured biomass in the PDD and also mention that the region should not be changed during the crediting period.					
Project Participant Response:				**Date:** 17/12/08	
The project emission is calculated using equation (1) and (4) of "**Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", Version-02, EB 41[2].** The reference has been mentioned in the revised PDD. As per the Meth AMS I.C, Version 13, determination of leakage shall be done following the General guidance on leakage **OR** following the prescriptions included in the leakage section of AM0042 as in annex 1 of AMS-I.C. In the PDD, We have estimated the leakages following the guidance not the Methodology AM0042. In this regards, we should not go through the approaches to rule out the leakages L1, L2, L3 and L4. The regions to procured biomass have been mentioned clearly in the section B.6.1 under heading "Leakages" of the revised PDD					
Documentation Provided by Project Participant:					
• *Revised PDD*					

[2] http://cdm.unfccc.int/methodologies/Tools/meth_tool03_v02.pdf

Information Verified by Lead Assessor:	
Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 21/01/2009
The equation for project emission mentioned in the PDD is not matching with the equation mentioned the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", Version-02, EB 41. Kindly clarify. Thus, CAR 05 is open.	
Project Participant Response:	**Date:** *04/02/09*
The project emission is calculated using equation (1) and (4) of "**Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", Version-02, EB 41[3].** The same equation has been mentioned in the revised PDD.	
Documentation Provided by Project Participant:	
Revised PDD, version 1.1, dated – 04/02/2009	
Information Verified by Lead Assessor:	
The revised PDD has been checked and found that equation for project emission are mentioned as per equation (1) and (4) of "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", Version-02, EB 41.	
Reasoning for not Acceptance or Acceptance and Close Out:	
The PDD has been revised and the equation for project emission are mentioned as per equation (1) and (4) of "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion", Version-02, EB 41. Thus,CAR 05 was closed.	
Acceptance and Close out by Lead Assessor:	**Date:** 11/02/2009

Date:	13/11/2008		Raised by:	Pankaj Mohan	
Type:	CL	Number:	06	Reference:	B.6.1
Lead Assessor Comment:			**Date:** 13/11/2008		
For Ex-ante data , the efficiency of baseline coal based boiler, supportive documents need to be provided by PP. Refer to the applied methodology, Page 3 ,Para 13,					
Project Participant Response:			**Date:** 17/12/08		
The following document is provided: Offer for 15tph coal fired boiler					
Documentation Provided by Project Participant:					
• Offer for 15tph coal fired boiler					
Information Verified by Lead Assessor:					
The offer for 15 TPH coal fire boiler has been checked for the efficiency of the boiler.					
Reasoning for not Acceptance or Acceptance and Close Out:			**Date:** 21/01/2009		
The evidences for the efficiency of baseline coal based boiler as per the applied methodology, Page 3 ,Para 13 is till pending. Thus, CL 06 is open.					
Project Participant Response:			**Date:** *04/02/09*		
As per the applied methodology, Page 3, para 13, Maximum efficiency of 100% of baseline coal based boiler has been considered in the revised PDD.					
Documentation Provided by Project Participant:					
• *Revised PDD, version 1.1, dated – 04/02/2009* • *Spreadsheet*					
Information Verified by Lead Assessor:					

[3] http://cdm.unfccc.int/methodologies/Tools/meth_tool03_v02.pdf

The revised PDD and spreadsheet has been checked and found that the efficiency of baseline boiler has been considered to be 100% as per the applied methodology
Reasoning for not Acceptance or Acceptance and Close Out:
PP has consider 100 % efficiency in baseline coal based boiler as per the methodology AMS I C Page 3 ,Para 13 which is conservative. Thus, CL 06 was closed .
Acceptance and Close out by Lead Assessor: **Date:** 11/02/2009

Date:	13/11/2008		Raised by:	Pankaj Mohan		
Type:	CAR	Number:	07		Reference:	B.9.1./ B.11.1
Lead Assessor Comment:				**Date:** 13/11/2008		
The monitoring plan does not mention the amount of each type of biomass fuel used, in the parameters to be monitored as Para section 23, methodology AMS I.C. The parameters NCV of biomass and fossil fuel mentioned in monitoring parameters will be done using Bomb calorimeter, How NCV will be measured using Bomb Calorimeter is not clear. Please Clarify the same. No QA/QC procedure is mentioned for the parameter $Q_{fossil,I,y}$ (Quantity of fossil fuel of type i combusted in year y).						
Project Participant Response:				**Date:** 17/12/08		
The monitoring plan clearly describes the parameter Qbiomass,I,y that Quantity of biomass of type i combusted in year y. A brief description of the NCV measurement method as per supplier specification has been mentioned in the revised PDD. The QA/QC procedure is mentioned for the parameter $Q_{fossil,I,y}$ (Quantity of fossil fuel of type i combusted in year y) in the revised PDD.						
Documentation Provided by Project Participant:						
• Revised PDD						
Information Verified by Lead Assessor:						
The revised PDD has been checked and found that monitoring plan clearly describes the parameter Qbiomass,I,y that Quantity of biomass of type i combusted in year y, a brief description of the NCV measurement method as per supplier specification has been mentioned and the QA/QC procedure is mentioned for the parameter Qfossil,I,y (Quantity of fossil fuel of type i combusted in year y) in the revised PDD.						
Reasoning for not Acceptance or Acceptance and Close Out:						
The revised PDD has been verified by the local assessor as well as by the lead assessor and found that the above mentioned issue has been incorporated. Thus, CAR 07 was closed..						
Acceptance and Close out by Lead Assessor:				**Date:** 21/01/2009		

Date:	13/11/2008		Raised by:	Pankaj Mohan		
Type:	CL	Number:	08		Reference:	D.1.2
Lead Assessor Comment:				**Date:** 13/11/2008		
Evidence to be provided that no EIA required for this project activity. Consent to establish & Consent to operate from state pollution control board need to be provided for the project activity.						
Project Participant Response:				**Date:** 17/12/08		
The evidence (reference) that no EIA required for this activity has been mentioned in the revised PDD. The project proponent has applied for Consent from state pollution control board for the project activity and it is under process. The PP has deposited Rs. 10,000 vide Challan no 06 for getting the consent. The photocopy of that challan form is provided.						
Documentation Provided by Project Participant:						
• *Revised PDD* • Photocopy of challan form						
Information Verified by Lead Assessor:						

The revised PDD has been checked and no EIA required for this activity has been mentioned, but no documentary evidences was provided. The photocopy of challan to state pollution control board has been checked.	
Reasoning for not Acceptance or Acceptance and Close Out:	21/01/2009
PP has not provided the evidence for no EIA required for the project activity. Consent to establish & Consent to operate from state pollution control board for the project activity is still pending as the challan is not sufficient evidence. CL 08 is open.	
Project Participant Response:	**Date:** *04/02/09*
The evidence that no EIA required for this activity is clearly mentioned in the PDD (reference no 19). PCB Consent is under process.	
Documentation Provided by Project Participant:	
Information Verified by Lead Assessor:	
Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 11/02/2009
Consent to establish & Consent to operate from state pollution control board for the project activity is still pending. CL 08 is open.	
Project Participant Response:	**Date: 06/04/09**
The PP has applied for PCB consent to establish and operate and these are under process. *The project is expected to commission in May or June 2009. PCB would provide the Consent to operate after commissioning of the project activity,*	
Documentation Provided by Project Participant:	
PCB letter, ref. no – 502/NOC-7/3/09, dated – 25/03/2009	
Information Verified by Lead Assessor:	
The PCB consent to established and operate from state pollution control board has been verified and found to be OK.	
Reasoning for not Acceptance or Acceptance and Close Out:	
PP has provided the consent to establish letter from PCB which has been checked and found to be OK. Thus, CL 08 was closed.	
Acceptance and Close out by Lead Assessor:	**Date:** 19/05/2009

Date:	13/11/2008		Raised by:	Pankaj Mohan	
Type:	CL	Number:	09	Reference:	E.1.2.
Lead Assessor Comment:			**Date:** 13/11/2008		
Evidence in support of media used (local newspaper) and invitation letter for local stakeholders consultant need to be provided by PP. Kindly provide the MOM of local stakeholders consultation carried out by PP.					
Project Participant Response:			**Date:** 17/12/08		
The following documents are provided: 1. Letter to district Magistrate dated on 28/08/08. 2. Letter to gram panchyat dated on 28/08/08. 3. Reply from gram panchyat. 4. MOM of meeting with gram panchyat. 5. Photo copy of newspaper advertisement(in English) in Newspaper “Rajpath” dated on 05/07/08. 6. Photo copy of newspaper advertisement in Newspaper “Prabda” dated on 16/07/08. 7. Photo copy of newspaper advertisement (in hindi) in Newspaper “Rajpath” dated on 10/07/08.					
Documentation Provided by Project Participant:					

1. Letter to district Magistrate dated on 28/08/08. 2. Letter to gram panchyat dated on 28/08/08. 3. Reply from gram panchyat. 4. MOM of meeting with gram panchyat. 5. Photo copy of newspaper advertisement(in English) in Newspaper “Rajpath” dated on 05/07/08. 6. Photo copy of newspaper advertisement in Newspaper “Prabda” dated on 16/07/08. 7. Photo copy of newspaper advertisement (in hindi) in Newspaper “Rajpath” dated on 10/07/08.
Information Verified by Lead Assessor:
The letter to the District Magistrate and Gram Panchayat ,Reply from Gram Panchayat and newspapers in English & Hindi are checked for the support of media used for stakeholders invitation. MOM meeting with of Gram Panchayat has been checked for local stakeholders consultant.
Reasoning for not Acceptance or Acceptance and Close Out:
PP has provided evidence in support of media used in local stakeholders consultant and MOM of local stakeholders consultant which has been checked by the local assessor as well as desk reviewed by the lead assessor. CL 09 was closed..
Acceptance and Close out by Lead Assessor: **Date:** 21/01/2009

A.4 Annex 4: Team Members Statements of Competency

Statement of Competence

Name: Kumar, Sanjeev. SGS Affiliate: SGS India

Status

-	Lead Assessor		-	Expert	x
-	Assessor		-	Financial Expert	
-	Local Assessor		-	Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable) **x**
Sub scope(s): Hydro, Wind, Combined heat and Power & Waste Heat, Biomass Electricity Utilization

2. Energy Distribution
Sub scope(s):

3. Energy Demand
Sub scope(s):

4. Manufacturing
Sub scope(s):

5. Chemical Industry
Sub scope(s):

6. Construction
Sub scope(s):

7. Transport
Sub scope(s):

8. Mining/Mineral Production
Sub scope(s):

9. Metal Production
Sub scope(s):

10. Fugitive Emissions from Fuels (solid, oil and gas)
Sub scope(s):

11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
Sub scope(s):

12. Solvent Use
Sub scope(s):

13. Waste Handling and Disposal
Sub scope(s):

14. Afforestation and Reforestation
Sub scope(s):

15. Agriculture
Sub scope(s):

Approved Member of Staff by: Siddharth Yadav Date: 05/10/2009

Statement of Competence

Name: Jyoti Deka, Nayan SGS Affiliate: SGS India

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	x	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	**x**
Sub scope(s): Biomass Electricity Utilization	
2. Energy Distribution	
Sub scope(s):	
3. Energy Demand	
Sub scope(s):	
4. Manufacturing	
Sub scope(s):	
5. Chemical Industry	
Sub scope(s):	
6. Construction	
Sub scope(s):	
7. Transport	
Sub scope(s):	
8. Mining/Mineral Production	
Sub scope(s):	
9. Metal Production	
Sub scope(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Sub scope(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Sub scope(s):	
12. Solvent Use	
Sub scope(s):	
13. Waste Handling and Disposal	
Sub scope(s):	
14. Afforestation and Reforestation	
Sub scope(s):	
15. Agriculture	
Sub scope(s):	

Approved Member of Staff by: Siddharth Yadav Date: 28/10/2009

Statement of Competence

Name: Mahawar, Abhishek SGS Affiliate: SGS India

Status

-	Lead Assessor		-	Expert	
-	Assessor	x	-	Financial Expert	x
-	Local Assessor	x	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)
Sub scope(s):
2. Energy Distribution
Sub scope(s):
3. Energy Demand
Sub scope(s):
4. Manufacturing
Sub scope(s):
5. Chemical Industry
Sub scope(s):
6. Construction
Sub scope(s):
7. Transport
Sub scope(s):
8. Mining/Mineral Production
Sub scope(s):
9. Metal Production
Sub scope(s):
10. Fugitive Emissions from Fuels (solid, oil and gas)
Sub scope(s):
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
Sub scope(s):
12. Solvent Use
Sub scope(s):
13. Waste Handling and Disposal
Sub scope(s):
14. Afforestation and Reforestation
Sub scope(s):
15. Agriculture
Sub scope(s):

Approved Member of Staff by: Siddharth Yadav Date: 12/11/2009